APPLICATION FOR THE CLEAN OHIO CONSERVATION FUND
SUMMARY SHEET

APPLICANT: Hamilton County Park District CODE # 061-02037

DISTRICT NUMBER: 2 COUNTY: Hamilton DATE 10/14/09

CONTACT: Ross Hamre PHONE # (513) 728-3551, Ext. 256

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PROJECT NAME: Dry Fork Creek Restoration on – Timberlakes Drive

ELIGIBLE APPLICANT
(Check Only 1)

__ A. County (1)
__ B. City (2)
__ C. Township (3)
__ D. Village (4)
__ E. Conservancy District (6)
__ F. Soil & Water Conservation District (7)
__ G. Joint Recreational District (8)
X H. Park District/Authority (9)
__ I. Nonprofit Organization (10)
__ J. Other_____ (11)

PROJECT TYPE
(Check Largest Component)

_____A. Open Space (7)

__X__B. Riparian Corridor (8)

PRIMARY PROJECT EMPHASIS 9, 7, 8

9. Preserves or restores natural stream channels.
7. Preserves or restores flood plain and stream side forest functions
8. Preserves or restores water quality

ESTIMATED TOTAL PROJECT COST (from 1.1f): $508,312.50

CLEAN OHIO CONSERVATION FUNDING REQUESTED: (from 1.2e) $381,234.00

NRAC APPROVAL - To be completed by the NRAC Committee ONLY

GRANT: $_____

FOR OPWC USE ONLY

PROJECT NUMBER: _____

Local Participation _____%

Clean Ohio Fund Participation _____%

APPROVED FUNDING: $

Project Release Date:

1.0 PROJECT FINANCIAL INFORMATION

1.1 PROJECT ESTIMATED COSTS:
(Round to Nearest Dollar)

	TOTAL DOLLARS	In Kind Dollars (See definition in instructions.)
a.) Acquisition Expenses:	$ .00	
Conservation Easement Purchase	$	
Easement Purchase	$	
Other	$ .00	

There is no acquisition involved in this application.

b.) Planning and Implementation:	$ .00	
Appraisal	$ .00	
Closing Costs	$ .00	
Title Search	$ .00	
Environmental Assessments	$ .00	
Survey	$ .00	
Other Eligible Costs	$ .00	

c.) Construction or Enhancement

Mobilization and Demobilization	$ 20,000 .00
Construction Layout and Staking	$ 3,600.00
Temporary Dam and Pump Around	$ 10,000.00
Channel Excavation and Grading	$ 45,600.00
Bankfull Bench Excavation	$ 25,800.00
Fill and Compaction	$ 21,700.00
Clay for fill material	$ 20,900.00
Boulders (Cross Vanes, J-Hooks, Stone Toe)	$ 99,000.00
Geotextile Fabric (Structures)	$ 3,250.00
Live Branches	$ 66,000.00
Erosion control blanket and wooden stakes	$ 12,500.00
Permanent Seeding	$ 625.00
Temporary Seeding	$ 300.00
Straw mulching	$ 500.00
Tree (2" caliper)	$ 40,000.00
Shrub (2 gallon)	$ 1,600.00
Live Stakes	$ 2,000.00
Split Rail Fence	$ 5,000.00
Temporary Construction Fence	$ 9,000.00
Park Restoration Allowance	$ 5,000.00
Construction sub-total	**$ 392,375.00**
One year of Vegetation Maintenance	$ 10,000.00
Design and Permitting Fees	$ 66,700.00
Total estimate	**$ 469,075.00**

Estimate was provided by Stantec Engineers.

d.) Permits, Advertising, Legal: $ .00

e.) Contingencies: $ 39,237.50
(not to exceed 10% of total costs)

Permitting and any overages will be paid in full by the HCE.

f.) **TOTAL ESTIMATED COSTS:** $ 508,312.50

1.2 PROJECT FINANCIAL RESOURCES:

(Round to Nearest Dollar and Percent)

		DOLLARS	%
a.)	In-Kind Contributions	$ .00	
	(Please define)_____		
b.)	Applicant Contributions (Local Funds)	$ 127,078.50	
c.)	Other Public Revenues		
	Nature Works	$ .00	
	Land Water Conservation Fund	$ .00	
	Ohio Environmental Protection Agency	$ .00	
	Ohio Water Development Authority	$ .00	
	Community Development Block Grant	$ .00	
	Ohio Department of Natural Resources	$ .00	
	OTHER	$ .00	
d.)	Private Contributions	$ .00	
SUBTOTAL LOCAL RESOURCES:		$ 127,078.50	25%
e.)	**CLEAN OHIO CONSERVATION FUND:**	$ 381,234.00	
	Funds from another NRAC	$ .00	
SUBTOTAL CLEAN OHIO RESOURCES:		$ 381,234.00	75%
f.)	**TOTAL FINANCIAL RESOURCES:**	$ 508,312.50	100%

1.3 AVAILABILITY OF LOCAL FUNDS:

Please list any partnership with other sources. (i.e.; is this part of a larger project or plan):

_____

_____

_____

_____

2.0 Project Information

2.1 Brief Project Description

Specific Location: The Dry Fork Creek Restoration site is located within the western portion of Miami Whitewater Forest which is owned and managed by the Hamilton County Park District (HCPD). The project site is located along Timberlakes Drive in Miami Whitewater Forest, Crosby Township, and north of West Road. This property is located in the OPWC District 2, in western Hamilton County, north of Interstate 74 and east of Dry Fork Road along the Dry Fork Creek approximately six miles upstream of the confluence with the Whitewater River. The eroded streambank lies within the Great Miami Aquifer and Watershed. See Exhibits 1 and 2 for location.

Project Emphasis: See Attachment A.

The HCPD is contracting Stantec Consultant Corp. (SCC) of Cincinnati to complete a stream restoration design for a portion of Dry Fork Creek in Miami Whitewater Forest, (MWF). SCC is currently developing plans for the creek section. Stantec has been hired to develop preliminary concept plans which are funded 100% with local funds. The remaining design fees and all streambank restoration and engineering installation will be included in this application. Below is a summary of the existing conditions of the site and recommendations presented to the HCPD by SCC. Staff will consult with SCC in the coming months to finalize design plans for this section of creek and begin restoration work in the fall of 2010.

Existing Situation

Dry Fork Creek, a tributary of the Whitewater River, meanders along several HCPD park roads, bridges, picnic areas, and trails within Miami Whitewater Forest. Over the past few years, ongoing stream bank erosion problems have threatened to undermine these existing infrastructure assets. Some of the counter measures used in the past have involved simple bank armoring techniques such as rip rap for emergency purposes, the relocation of the facility (trail), and natural channel design techniques.

View shows a portion of the bank failure along Timberlakes Drive.

In 2007 and 2008, major storm events created severe stream bank erosion problems along 150 feet of Timberlakes Drive (a primary park road serving Miami Whitewater Forest). The stream bank was initially 30 feet or more away from the pavement. It is now within 15 feet and threatening to undermine the road. At this time, no emergency counter measures have been put in place, because of the stream bank's near vertical side slope and 20 feet height.

Stantec Consulting conducted diagnostic surveys on Dry Fork Creek near Dry Fork Meadow to gain an understanding of the underlying physical processes leading to channel instability that threatens Timberlake Drive. They stated the following: *The Dry Fork Creek is geomorphically unstable through much of its length in the Miami-Whitewater Forest (MWF). The channel is adjusting to conditions in the basin and in the project area. Dry Fork Creek in the project area is currently classified as a Rosgen "F-type" stream. F-type streams are highly entrenched and have low width to depth ratios. Consequently the force of flood flows is concentrated into a narrow area within the channel. The magnitude of erosion in the project area suggests that the channel is not stable in its present form. This instability has increased sediment loading to reaches within the MWF and elsewhere in the basin and has degraded aquatic habitat. Channel adjustment and subsequent bank erosion near the Dry Fork Meadow currently threatens to undermine Timberlake Drive and a picnic area within the MWF. This scope of services and cost estimate was prepared to restore aquatic habitat within this reach, reduce sediment loading, and reduce the potential for erosional processes to jeopardize the road.*

Consulting Services
The consultant will be required to perform all engineering related services needed to study the natural channel design and bio-engineer strategies and to develop detailed construction plans. The consultant will obtain stream channel survey data; evaluate stream module strategies; develop detailed construction plans, specifications and estimates based on the recommended strategy; obtain Army Corps of Engineer permits; assist the HCPD in the Clean Ohio Conservation application process.

This project consists of using natural channel design and bio-engineering techniques that will stabilize the immediate erosion area impacting Timberlakes Drive as well as restore the stream to improve aquatic and riparian habitat for fish and wildlife.

No Build Scenario
If the channel continues to widen, as the field surveys suggest it will, Timberlake Drive is in jeopardy of severe damage and potentially closure. Erosion near cross section one reduces the scenic quality of the adjacent picnic area and may also jeopardize infrastructure in the area. See Appendix B for location of cross section one. The height of the eroded banks in both areas presents a potential safety hazard for park patrons.

Preferred Recommendation
The preferred approach for addressing channel instability in the project area is to 1) reduce bankfull shear stress by altering the channel cross section and 2) to use bioengineering techniques to stabilize banks in the areas most susceptible to continued bank failure. The channel cross section will be altered such that bank slopes are lower, the thalweg is shifted toward the center of the channel, and a bankfull bench will increase roughness on the lateral margins. The bioengineering techniques are intended to establish riparian vegetation in areas where trees cannot currently grow. Root mass is an important element of reducing localized erosion. Riparian plantings will include native species and will

emphasize trees that are commonly used by Indiana bats for roosting (i.e., those that develop exfoliating bark) as they have been documented nesting in the area. Below is the engineer's estimate for the Dry Fork Creek restoration project.

Engineer's Estimate for the Bioengineering Stream Construction and Native Restoration Plan.

Dry Fork Bank Stabilization ***Conceptual Opinion of Probable Costs***					
No.	***Item***	***Unit***	***Quantity***	***Unit Price***	***Item Cost***
1	**Mobilization and Demobilization**	LS	1	*$ 20,000.00*	*$ 20,000.00*
2	**Construction Layout and Staking**	LS	1	*$ 3,600.00*	*$ 3,600.00*
3	**Temporary Dam and Pump Around**	LS	1	*$ 10,000.00*	*$ 10,000.00*
4	**Channel Excavation and Grading**	CY	3,800	*$ 12.00*	*$ 45,600.00*
5	**Bankfull Bench Excavation**	CY	4,300	*$ 6.00*	*$ 25,800.00*
6	**Fill and Compaction**	CY	3,100	*$ 7.00*	*$ 21,700.00*
7	**Clay for Fill Material**	CY	950	*$ 22.00*	*$ 20,900.00*
8	**Boulders (Cross Vanes, J-Hooks, Stone Toe)**	Tons	1,650	*$ 60.00*	*$ 99,000.00*
9	**Geotextile Fabric (Structures)**	SY	1,300	*$ 2.50*	*$ 3,250.00*
10	**Live Branches**	EA	110,000	*$ 0.60*	*$ 66,000.00*
11	**Erosion Control Blanket and Wooden Stakes**	SY	2,500	*$ 5.00*	*$ 12,500.00*
12	**Permanent Seeding**	Lbs	25	*$ 25.00*	*$ 625.00*
13	**Temporary Seeding**	Lbs	100	*$ 3.00*	*$ 300.00*
14	**Straw Mulching**	Bales	50	*$ 10.00*	*$ 500.00*
15	**Tree (2" Calliper)**	Each	200	*$ 200.00*	*$ 40,000.00*
16	**Shrub (2-Gallon)**	Each	40	*$ 40.00*	*$ 1,600.00*
17	**Live Stakes**	Each	500	*$ 4.00*	*$ 2,000.00*
18	**Split Rail Fence**	LF	250	*$ 20.00*	*$ 5,000.00*
19	**Temporary Construction Fence**	LF	1,500	*$ 6.00*	*$ 9,000.00*
20	**Park Restoration Allowance/invasive plant removal/misc. plantings**	LS	1	*$ 5,000.00*	*$ 5,000.00*
				CONSTRUCTION SUB-TOTAL	$ 392,375.00
				Contingency (10%)	$ 39,237.50
				One Year Vegetation Maintenance	$ 10,000.00
				DESIGN AND PERMITTING	$ 66,700.00
				TOTAL	$ 508,312.50

C. Project Emphasis

OPEN SPACE
Woodland Habitat

__X__ **1. Reduces or eliminates non-native, invasive species of plants, and revegetates with native species.**

__X__ **2. Preserves or increases high quality, viable habitat for plant or animal species, where the forest canopy or native vegetation covers greater the 50% of the area.**

The removal of invasive species such as honeysuckle along the Dry Fork Creek bed will be a part of this application. By removing the invasive plants, native wild flowers and under story shrubs will be encouraged to reestablish themselves along the banks therefore improving the overall health and diversity of the site.

View shows typical Asian Bush Honeysuckle along the stream.

The honeysuckle plants will be sprayed with a gylphosate herbicide during the fall of 2010. HCPD staff will hire a contractor to perform this task and will require that they kill at least 80% of the honeysuckle. The contractor along with staff will inspect the site in one year to determine their success and will provide appropriate services at that time to reach the 80% kill rate. When the contractor has successfully fulfilled their contract, the site will require routine maintenance by staff to prevent non-native invasive plants from re-establishing. Initial control of honeysuckle and other invasive plants will take a full growing season to complete. A survey will be completed the following season to prescribe specific maintenance where needed.

In addition to the invasive plant removal, numerous trees and shrubs will be planted along the creek's northern riparian corridor to increase the width of the plant buffer. When this work is complete the riparian corridor will be widened to at least 100 feet adding more than 60 feet in some areas to the corridor's width. This added reforestation will allow a more diverse landscape to emerge naturally and provide a more abundant ecosystem for the native wildlife including the endangered Indiana Bat which has been documented near this park at the Fernald Preserve. The tree planting within the northern banks riparian corridor is included in this application and is listed as a line item in the estimate. The site being repaired does have a considerable amount of riparian corridor and has more than 50% of cover.

In addition, this stream restoration will also include the plantings of numerous live stakes, sapling trees and shrubs as well as the spraying of herbaceous forbs to stabilize the stream bank. See Appendix A - D for restoration plan and details. When the design work is complete, the HCPD will publicly bid this stream restoration work and all restoration will be completed by a certified contractor.

__X__ **3. Includes linkages to other parks, openspace/greenspace preserves, population centers, and lower income areas.**

The scope of work is within the Miami Whitewater Forest boundaries.

__X__ **4. Supports openspace/greenspace planning and preserves lands as recommended within previously identified planning or natural resources management documents.**

This bank stabilization and riparian planting project is consistent with and helps to implement a number of important community and local environmental plans and policies adopted by county organizations regarding environmental sensitivity to natural features. Two more notable plans are the Hamilton County Planning Commission's Community Compass Plan, environmental portion and the HCPD's Storm Water Management Program. These plans are explained in more detail in section IV, section 1, page 10.

__X__ **5. Provides access to natural areas that result in recreational, economic, or aesthetic preservation benefits.**

The aesthetic preservation benefit of this plan will be increased greatly when the stream restoration, widening of the riparian corridor and invasive plant removal is complete. By making this a healthier habitat for both plants and animals and reducing the erosion events in this area, it will enhance the beauty of this site.

Riparian Corridor

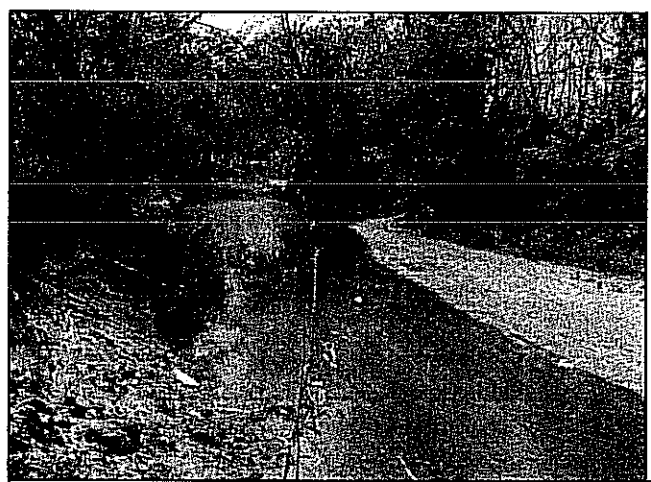
__X__ **7. Preserves or restores functioning floodplains, including groundwater recharge areas.**

__X__ **8. Preserves or restores natural stream channels.**

__X__ **9. Preserves or restores streamside forest, native vegetation or adjacent habitat.**

__X__ **11. Permanent acquisition of riparian corridors, watersheds, forested hillsides or greenspace linkages.**

__X__ **12. Plants vegetation or reforest lands for filtration to improve water quality, or to control stormwater runoff.**

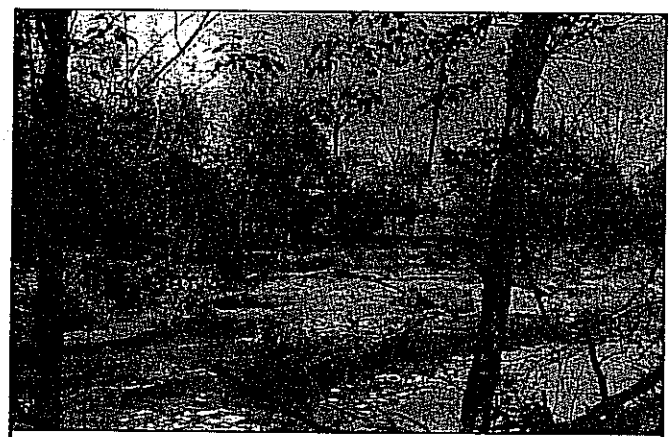


A portion of the bank failure on the project site.

The Dry Fork Creek is a natural stream channel within the 100 year floodplain that empties into the Great Miami River. See Exhibit 3, Floodplain Map. The streambank stabilization in this area will greatly improve the water quality of the stream by reducing siltation. There is currently some healthy riparian species along this channel, however, the HCPD will enhance this stand and increase the riparian area's width. Riparian tree species will be used along the bank and some which also will provide a habitat for the federally endangered Indiana Bat.

The yearly flooding along Dry Fork Creek is taking its toll on the surrounding banks of the creek. The engineered plan described in this plan will ensure that the creek bank is more stable due to the work performed within and outside of the stream area, and will better resist erosion. By placing the J-hooks, cross veins and native plantings necessary, the velocity of the stream flow will decrease significantly and the planting and seeding of riparian plant species will begin to establish, thus improving the health of the floodplain. The new vegetation will help to filtrate and clean the water, thus improving water quality.

Improving the water quality will also aid in preserving the health of the aquatic species in the creek and improve connecting water systems in this aquifer system and the larger water system in the county. Two fish of special interest have been documented in this creek and are described in more detail in section Part IV, part 2, page 11. They are considered intolerant to polluted waters and can only be found in clean, healthy streams such as Dry Fork Creek. If the bank was allowed to continue deteriorating, these fish may be impacted due to the increased soil sedimentation.



A portion of the site where trees will be planted to restore a healthier riparian corridor.

The HCPD, as mentioned earlier, will widen the existing riparian corridor to approximately 100 or more feet using native tree species. Currently, the existing corridor is not adequate to properly filtrate and slow the stream's flow. Increasing the vegetative buffer along this stream will facilitate this process. The HCPD has performed periodic water quality tests on Dry Fork Creek since the property was purchased and it has been found that Dry Fork Creek's water quality is very high, achieving a classification as an exceptional warmwater habitat.

Purchase Contract: There is no property purchase associated with this project. The property is already protected as a greenspace by the Hamilton County Park District.

Part III. Compliance with State Criteria

1. Percentage of Clean Ohio matching funds necessary to complete project

___X__ 75% _____ 74 - 70% _____ 69 - 65% _____ 64 - 60% _____ <60%

The HCPD is applying for 75% of Clean Ohio Funding for the 2009 funding year for the Dry Fork Creek project.

2. Level of collaborative participation: Participation means active involvement through in-kind services or funding.

_____ local political subdivisions _____ State agencies _____ federal agencies

_____ community organizations _____ conservation organizations

_____local business groups

3. OPWC Districts

_____ Joint project in more than one district

_____ Joint project in this district

_____Carries out an adopted community, watershed or other plan overlapping another district

4. Community benefits: Relative economic, social and recreational benefits

__X__ economic benefits ____ social/recreational

Economic Benefits

Numerous plans in the county encourage the preservation and restoration of riparian corridors. By adding native vegetation, it improves biodiversity. Greenspace will reduce storm water management costs and water quality management cost by increased absorption of runoff. The presence of preserved trees on site also creates a process called transpiration which helps to purify air quality in Hamilton County, which currently is in noncompliance with the Environmental Protection Agency. This process would help reduce air quality related health costs, such as treatment for lung cancer, asthma and other respiratory diseases.

5. **Extent of Public access once project is completed.**
The site is currently accessible to the public from dawn to dusk and is very visible. The site can be accessed via Timberlakes Drive. The project site is in a natural state with a partial riparian corridor.

The site is located directly adjacent to a road within the MWF.

6. **Ownership/Management/Operation**

Ownership/Management

The HCPD owns and manages the project site discussed in this application and is a protected greenspace area. The site is located within the western portion of the Miami Whitewater Forest south of Timberlakes Drive.

The HCPD staff has decades of management experience in land stewardship and currently manages approximately 13,000 acres of natural area and miles of streams and rivers. The Park District has the staff time and expertise to manage this site after the restoration is complete. Through a Clean Ohio Grant in 2006, the HCPD restored another section of Dry Fork Creek within the Miami Whitewater Forest to stabilize a nearby road. The work has stabilized the hillside which was undermining the road and the vegetation planted on site is growing as expected. Staff monitors this site regularly to ensure the bio-engineering work is performing as expected. To date, the restoration work has been a success and the vegetation is expected to continue maturing.

Maintenance/Operations

The MWF property has been maintained and operated by the HCPD since it's purchase. The streambank restoration project, when completed, will be monitored as needed to assess the slope's status to ensure the long term success of this repair.

The HCPD is an experienced and successful steward of land and is currently responsible for successfully maintaining and operating over 3,784 acres of natural area within the Miami Whitewater Forest. The HCPD currently manages over 16,000 acres of parkland. The HCPD's mission states that 80% of the total parkland acreage will perpetually remain in a natural state.

The HCPD has an operation plan and infrastructure in place and is ready to begin maintenance on the site.

Similar Experience

The HCPD has been involved in the successful restoration of several eroded streams in the past ten years. Two large stream restoration projects have been completed to date, the Lake Isabella project is complete and the Kilby Road project is nearing completion. The Dry Fork stream restoration was completed

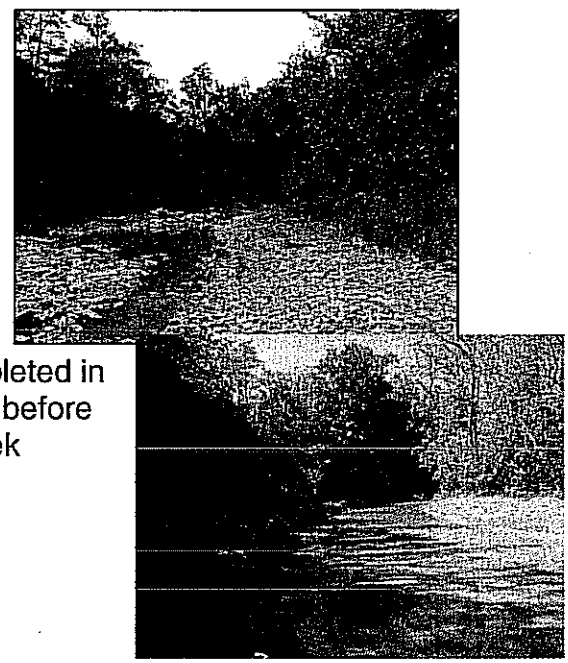
upstream of this site and to date is performing well and maintaining the slope as designed. Below are more detailed descriptions of these bank stabilization projects.

Previous bank stabilization and erosion control projects –

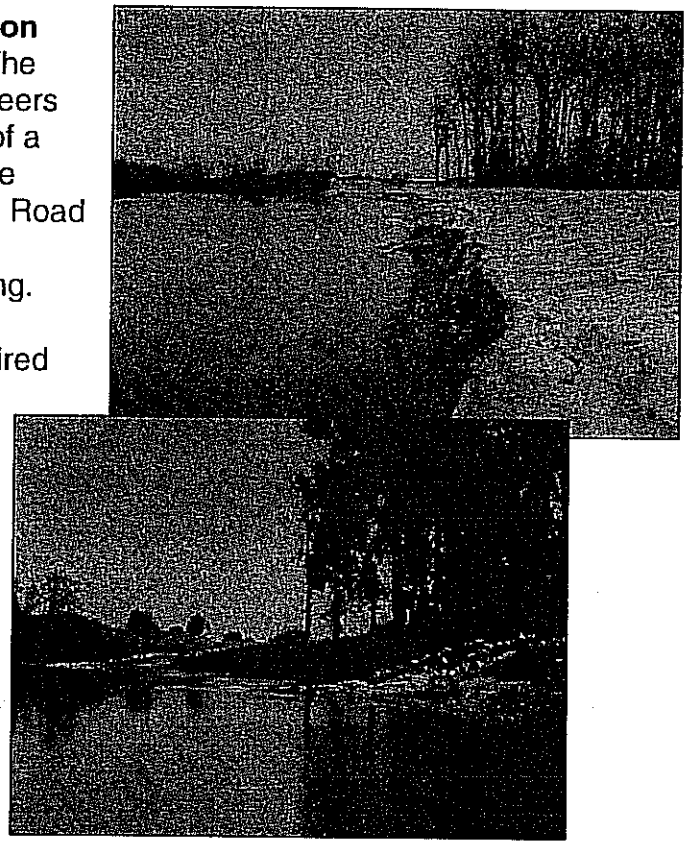
- Lake Isabella Riverbank Stabilization project. The Park District used bio-engineering techniques to successfully stabilize the bank separating the Little Miami River and Lake Isabella. The Park District hired Mainstream Restoration Inc. to develop a bio-engineering plan that would stabilize the 34' foot high earthen barrier separating the Little Miami River and Lake Isabella. The project was completed by the Park District in 2000 and is continuing to work as expected, securing the bank. The stabilization has proven to be very successful at this site and is preventing erosion on the slope. See before and after photos of this project in Exhibit 4.

  The Park District received an Environmental Award for this project from the National Association of County Parks and Recreation Officials (NACPRO) following completion of the work.

- Dry Fork Creek Stabillization at Oxford Road project – This stream restoration was a Clean Ohio Project which has been completed successfully. The project included bio-engineering of 1,400 linear feet of streambank which included restoration planting as well as rock structures to stabilize the streambank. The restoration was completed in 2008. The pictures to the right show a before and after shot of one section of the creek restoration that has been completed.



- **Kilby Road Restoration on the Whitewater River** - The HCPD hired FMSM engineers to design the restoration of a 600 foot long portion of the Whitewater River on Kilby Road that was partially funded through Clean Ohio funding. Following two major flood events the work was repaired and vegetation is starting to establish. The photos to the right show what the site looked like before restoration and the second shot was taken in late September 2009.



Part IV. Compliance with Hamilton County Priorities

1. Community Planning –

The Community Compass/Hamilton County 2030 plan and implementation framework, Greenspace Concept Plan states the importance of preserving our natural greenspace resources. The greenspace concept has evolved from the identification of environmental critical and sensitive areas, such as aquifers and steep slopes, existing public and private open space and other natural features such as rivers, streams and lakes. The Greenspace Concept map utilizes the work and recommendations of various organizations including the recent Hamilton County Regional Planning Commission State of the County Report on environmental as well as the nine county Regional Greenprint prepared by Green Umbrella, extensive geographic and environmental analysis completed by the Hamilton County Park District, environmental policies recommended by OKI Land Use Commission's Regional Strategic Policy Plan and the aligned policies related to environment in the Hamilton County Policy Plan. The Dry Fork Creek restoration site is classified as having a very high water quality. These types of streams are identified on the Greenspace Concept Plan Map as an environment to preserve. Dry Fork Creek is also a tributary of the Whitewater River. It has one of the highest clean water designations in the State.

The HCPD's priority to preserve greenspaces in this county is further reflected in the Hamilton County Planning Commission's Community Compass Report No. 16-6 "State of the County Report: Environment. It states that "Whereas past conservation efforts often focused on protecting individual pieces of land,

emphasis is now being placed on the need to provide for green infrastructure. Green infrastructure provides a framework for creating an interconnected network of natural streams, conservation lands, working landscapes and other green spaces that support native species, maintain natural ecological processes, sustain air and water resources, and contribute to the health and quality of life for American's communities and people".

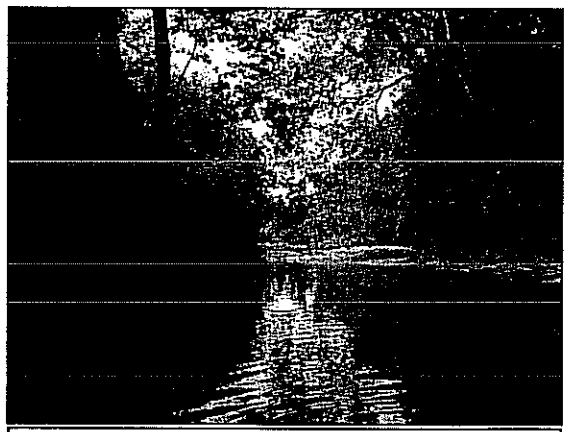
This acquisition will also comply with the EPA mandated and approved **Storm Water Management Program** prepared by HCPD.

In March 2003, HCPD completed this mandated plan that defines HCPD's stewardship practices for all existing and newly acquired greenspaces. This program was approved by the OEPA in 2003, providing the Park District with a five year permit for projects occurring during that time. OEPA recently updated the HCPD's permit until January 2014. The HCPD is required by law to implement all stewardship and development guidelines as set forth in our Storm Water Management Program to ensure the greenspaces are managed per the OEPA's standards.

This program outlines some major components that are a part of HCPD stewardship practices. They include: preserving open space; performing environmental assessments on potential acquisitions, reducing impervious surfaces on the site, and reforesting these lands.

2. **Natural Resource Viability: How important is the project to the viability of the natural resources affected by the project.**

Protects a threatened biological community or important example of Ohio's natural heritage.
The Ohio Department of Natural Resources (ODNR), February of 2006, gave the Dry Fork Creek a stream designation of an Exceptional Warmwater Habitat, which is the highest stream classification that can be achieved in Ohio. This stream also has an impressive 26 to 28 species of fish which is seen as considerable for an Ohio stream of this size. The significantly elevated health status of this stream makes it even more critical that this restoration occur to prevent further siltation and erosion from entering the stream. See Appendix E



Dry Fork Creek is classified as an Exceptional Warm Water habitat.

In addition to this designation, this project will increase the riparian corridor along this stream bank with species that provide good habitat for the federally endangered Indiana Bat. This species is dependant on riparian corridors in the summer months for foraging and roosting. Indiana Bats have been found along Paddy's Run near the old Fernald Plant in Crosby Township

and after restoration it is plausible that this could provide additional habitat for this animal. See Appendix F .

Protects more than 5 State Natural heritage inventory endangered species.

Sandhill Crane

Two state endangered bird species were spotted in 2009 in the Miami Whitewater Forest by members of the Cincinnati Bird Club, (CBC); the Northern Harrier and the Sandhill Crane. In addition various sitings have been recorded by the CBC members over the years in this park which included, the Golden Winged Warbler in late 2006, the Lark Sparrow in the spring of 2006, the Yellow bellied Sapsuckers on December 20, 2008 and the American Bittern in May of 2007. See Appendix G for documentation of these siting. It is likely that the birds spotted in the last two years are at the site and have not been sited by anyone as the habitat does support their needs.

Protects 1-5 State ranked rare species

In addition, two species of threatened birds were seen this year in Miami Whitewater Forest in 2009; the Bald Eagle, and Dark eyed Junko. These birds were sited during the Annual 2009 Bird Count. Two other species have also been noticed in the park in the last few years by CBC members as well. The Least Bittern in June of 2008, and the Osprey in April of 2007. See Appendix G for documentation.

Least Bittern

The Dry Fork Creek also contains two fish species that are considered "intolerant" to pollution in the stream and are only found in non contaminated waters. This would pertain to sedimentation and erosion in the water. These fish species are Stonecat Madtom - Noturus flavus and Black Redhorse - Moxostoma duquesnei. If this stream is not managed effectively, these fish species may be significantly impaired. See Appendix H.

3. **Project preserves or naturally restores steep hillsides with slopes greater than 20%:**

The eroded areas along the river shore far exceeds a 20% slope. The majority of the streambank along the Dry Fork Creek restoration area averages approximately 70%. The slope combined with the erodable soils in this area makes this creek bed particularly vulnerable to slippage.

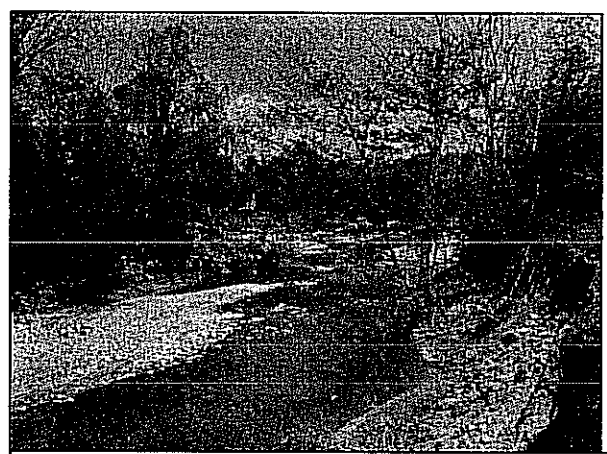
Typical view of the stream embankment.

The stream restoration work, when completed, will stabilize this bank substantially. The native reforestation added to the northern riparian corridor will further stabilize this bank. See Exhibit 5, USGS Map.

6. **Protection of highly erodable lands:**

The restoration site is composed predominantly of Genessee loam, Gn, with small portions containing Eden silty clay loam, EcE, EcD and McB. See Exhibit 6 for Soil Map.

The **GN, Genessee Loam, occasionally flooded** soil classification is located on the majority of the site. These areas generally range from 0 to 2% slope and are located on flood plains. Due to stream erosion, however, the stream bank consistently exceeds 20% while the remaining area is relatively flat. This classification is subject to occasional brief flooding. This classification is usually long and narrow and range from 2 to 400 acres. Typically, the surface layer is brown, friable loam about 9 inches thick. Permeability is moderate. The available water capacity is very high, and runoff is slow. The organic matter content is moderate.



The soils along the stream are not stable and tend to erode if not properly secured.

In areas such as that on this site, measures such as the use of plant cover is needed to reduce stream bank erosion the soil is well suited to trees and habitat for open land and woodland wildlife. This soil is in capability subclass IIw and woodland suitability subclass 1o.

This plan has addressed the constraints of this soil type by vegetating this area with appropriate planting material and to place accepted environmentally sound engineering practices into the stream bed to stabilize its potential to erode.

EcE – Eden silty clay loam, 25 to 40% slope – This moderately steep well drained soil is on hillsides on uplands. Most areas are dissected by shallow drainage ways, and many areas have hillside slips. Most areas are long and narrow or irregularly shaped and range from 5 to 200 acres in size. Permeability is slow. The root zone is mainly restricted to the 20 to 40 inch thick zone above the shale and limestone bedrock. The available water quality is low. Runoff is very rapid. This soil is used as pasture and is moderately well suited to this use. This soil is used as woodland and is moderately well suited to trees.

EcD, Eden silty clay loam 15-25%. A quarter of the site contains this classification. The intermittent streams on site are located on this classification. This soil is moderately deep, moderately steep, well drained soil on hillsides on uplands. Some areas have hillside slips. Most areas are long and narrow or irregularly shaped. Permeability is slow and the root zone is generally restricted to the 20 to 40 inch thick zone able the shale and limestone bedrock. The available water capacity is low and runoff is very rapid. Controlling erosion, maintaining a stand of forage species and conserving moisture are major concerns with this property as erosion is a problem on these slopes. Woodlands on the site are necessary to hold the steep slopes otherwise erosion is a severe hazard in these soil types. The Park district will plant appropriate plants on site to stabilize unstable slopes.

McB, Martinsville silt loam, 2 to 6% slopes – this deep gently sloping well drained soil is on broad stream terraces. Most areas are irregularly shaped and 5 to 40 acres in size. Permeability is moderate. The root zone is deep. The available water capacity is high and runoff is medium. The organic matter content is moderately low or moderate. There is very little of this soil classification on this site.

8. **The scope of the project will restore approximately 2,500 linear feet of streamside and it's forest.**

Readiness to proceed: The HCPD is ready to proceed with this project upon award of the Clean Ohio Application. Stantec has already begun the design phase of this project and is estimated to be completed by Summer of 2010. Construction will begin in Fall of 2010 and be complete by Spring of 2011.

D. **Define Terms of Easement** This application does not entail acquisition of land with funds from the Clean Ohio Fund. The restoration/bank stabilization and riparian corridor replanting work occurs on park property. The HCPD agrees to grant the Ohio Pubic Works Commission an easement on the acreage within the scope of work for the project as shown in Exhibit 2.

3.0 PROJECT SCHEDULE:*

		BEGIN DATE	END DATE
3.1	**Planning and Implementation:**	01/01/10	06/30/10
3.2	**Land Acquisition/Easements:**	/ /	/ /
3.3	**Stream Restoration:**	09/01/10	04/30/11

* Failure to meet project schedule may result in termination of agreement for approved projects. Modification of dates must be requested in writing by a project official of record and approved by the commission once the Project Agreement has been executed.

4.0 PROJECT OFFICIALS:

4.1	CHIEF EXECUTIVE OFFICER	Jack Sutton
	TITLE	Director
	STREET	10245 Winton Road
	CITY/ZIP	Cincinnati, OH 45231
	PHONE	(513) 521-7275
	FAX	(513) 521-2606
	E-MAIL	jsutton@greatparks.org
4.2	CHIEF FINANCIAL OFFICER	Thomas R. Kaluba
	TITLE	Treasurer
	STREET	10245 Winton Road
	CITY/ZIP	Cincinnati, OH 45231
	PHONE	(513) 521-7275
	FAX	(513) 521-2606
	E-MAIL	tkaluba@greatparks.org
4.3	PROJECT MANAGER	Ross Hamre
	TITLE	Planning Director
	STREET	10245 Winton Road
	CITY/ZIP	Cincinnati, OH 45231
	PHONE	(513) 728-3551, ext. 256
	FAX	(513) 521-2896
	E-MAIL	rhamre@greatparks.org

Changes in Project Officials must be submitted in writing from the CEO or CFO.

5.0 ATTACHMENTS/COMPLETENESS REVIEW:

In order that your application may be processed in a timely fashion, please submit your application on 8 ½ by 11 white paper with dark ink so that it may be copied for others. It is understood that some items may not conform to this request such as large maps and photographs. Please feel free to include these items.

Confirm in the blocks [ ] below that each item listed is attached.

[X] A certified copy of the authorization by the governing body of the applicant authorizing a designated official to sign and submit this application and execute contracts. This individual should sign under 6.0, Applicant Certification, below.

[X] A certification signed by the applicant's chief financial officer stating all local share funds required for the project will be available on or before the dates listed in the Project Schedule section.

[X] A formal detailed estimate of the project's costs provided by an architect, landscape architect, or other professional. For land acquisition, an appraisal by a State-certified general real estate appraiser, as defined under ORC 4763 for the type of land being appraised will need to be submitted to the NRAC prior to closing.

[ ] A cooperation agreement (if the project involves more than one entity) which identifies the fiscal and administrative responsibilities of each participant.

[X] Resolution of Support (Please refer to section 164.23(B)(1) of the Ohio Revised Code for guidance.)

[X] Identification of any participation by state agencies that will provide to this particular project and that will provide assistance with respect to the project.

[X] Information concerning the coordination of the project among local political subdivisions, state agencies, federal agencies, community organizations, conservation organizations, and local business groups.

[X] Supporting Documentation: Materials such as additional project description, photographs, and/or other information to assist your NRAC in ranking your project. Be sure to include supplements which may be required by your *local* NRAC.

[X] Have you reviewed your NRAC's methodology to see that you have addressed all components?

6.0 APPLICANT CERTIFICATION:

The undersigned certifies: (1) he/she is legally authorized to request and accept financial assistance from the Ohio Public Works Commission; (2) to the best of his/her knowledge and belief, all representations that are part of this application are true and correct; (3) all official documents and commitments of the applicant that are part of this application have been duly authorized by the governing body of the applicant; and, (4) should the requested financial assistance be provided, that in the execution of this project, the applicant will comply with all assurances required by Ohio Law, including those involving Buy Ohio and prevailing wages.

Applicant certifies that the project, as defined in the application, has NOT resulted in any transfer of title or rights to land or begun any type of physical improvements prior to the execution of a Project Agreement with the Ohio Public Works Commission. Action to the contrary will result in termination of the agreement and withdrawal of Ohio Public Works Commission funding.

JACK SUTTON, Director

10/16/09

Original Signature/Date Signed

ATTACHMENT A

PROJECT EMPHASIS (Dry Fork Creek Restoration –Timberlakes Drive)
NOTE: IF THE PROJECT HAS MORE THAN ONE EMPHASIS, PLEASE PLACE A "1" IN THE CATEGORY THAT IS THE PRIMARY EMPHASIS, A "2" IN THE CATEGORY WITH SECONDARY EMPHASIS, AND A "3" IN THE CATEGORY WITH THIRD EMPHASIS.

OPEN SPACE

____ 1. Protects habitat for rare, threatened and endangered species
___ 2. Increases habitat protection
____ 3. Reduces or eliminates nonnative, invasive species of plants or animals
___ 4. Preserves high quality, viable habitat for plant and animal species
____ 5. Restores and preserves aquatic biological communities
___ _6. Preserves headwater streams
__2_ 7. Preserves or restores flood plain and stream side forest functions
__3_ 8. Preserves or restores water quality
__1_ 9. Preserves or restores natural stream channels
____10. Preserves or restores functioning flood plains
___ 11. Preserves or restores wetlands
___ 12. Preserves or restores stream side forests
____13.Preserves or restores other natural features that contribute to quality of life and state's natural heritage

RIPARIAN CORRIDOR

____14. Fee simple acquisition of lands to provide access to riparian corridors or watersheds.
____15. Acquisition of easements for protecting and enhancing riparian corridors or watersheds
___ 16. Reforestation of land
___ 17. Planting vegetation for filtration
___ 18. Incorporates aesthetically pleasing and ecologically informed design
____19. Enhances educational opportunities and provides physical links to schools and after school centers
____20. Acquisition of connecting corridors
___ 21. Supports comprehensive open space planning
____22. Provides multiple recreational, economic and aesthetic preservation benefits
____23. Allows proper management of areas where safe hunting and trapping may take place in a manner that will preserve balanced natural ecosystems.
___ 24. Enhances economic development that relies on recreational and ecotourism in areas of relatively high unemployment and lower incomes

CHIEF FINANCIAL OFFICER'S CERTIFICATION OF LOCAL FUNDS

October 16, 2009

I, Thomas R. Kaluba, Treasurer of the Hamilton County Park District, hereby certify that Hamilton County Park District has the amount of $127,078.50 in the Land Acquisition Fund and that this amount will be used to pay the applicant revenues for the Dry Fork Creek Restoration – Timberlakes Drive.

Thomas R. Kaluba, Treasurer

BOARD OF PARK COMMISSIONERS
HAMILTON COUNTY PARK DISTRICT

July 23, 2009

RESOLUTION NO. 2853

CLEAN OHIO CONSERVATION PROGRAM

WHEREAS, the Board of Park Commissioners of the Hamilton County Park District, desires financial assistance under the Clean Ohio Conservation Program Funds, administered by the Ohio Public Works Commission.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Park Commissioners of the Hamilton County Park District, as follows:

1. That the Board of Park Commissioners of the Hamilton County Park District hereby approves filing of applications for the Clean Ohio Conservation Program Funds for 2009.

2. That Jack Sutton, Director, is hereby authorized and directed to execute and file applications with the Ohio Public Works Commission, to enter into any agreements as may be appropriate and necessary for obtaining this financial assistance, and to provide all information and documentation required in said application for submission to the Ohio Public Works Commission.

3. THAT THE BOARD OF PARK COMMISSIONERS OF THE HAMILTON COUNTY PARK DISTRICT hereby does agree to obligate the funds required to satisfactorily complete the proposed projects and thus become eligible for Clean Ohio Conservation Program financial aid up to 75% of the total project costs.

BOARD OF PARK COMMISSIONERS
HAMILTON COUNTY PARK DISTRICT

JAMES E. BUSHMAN, President

ROBERT A. GOERING, SR., Vice President

NANCY R. HAMANT, Vice President

ATTEST:

This 23rd day of July, 2009

JACK SUTTON, Director

Consultation with Legislative Authorities Per PRC 164.23

HAMILTON COUNTY PARK DISTRICT
10245 Winton Road, Cincinnati, Ohio 45231

FACSIMILE COVER SHEET
TEL NO. (513) 728-3551 Ext.217
FAX NO. (513) 521-2896

DATE:	August 5, 2009	FAX NO.	738-4310
TO:	Crosby Township	PAGES:	5
ATTN:	**Township administrator**		(including this cover sheet)
FROM:	**Sally Bauer, Park Planner**		

IF YOU HAVE ANY PROBLEM WITH THE RECEPTION OF THESE PAGES, PLEASE CONTACT US AT (513) 728-3551, EXT 264

As required by the Clean Ohio Conservation Program Grant Application, Ohio Revised Code Sec. 164.23, the Hamilton County Park District is consulting with CrosbyTownship regarding the following project:

- Dry Fork Creek Restoration near Timberlakes Drive

(See attached project information describing the above project)
No Funds from Crosby Township are involved in this project.

Please respond to this fax indicating you have received this information and acknowledge these applications.

Should you have any questions, please contact Sally Bauer, Park Planner at 728-3551 extension 264.

HAMILTON COUNTY PARK DISTRICT
10245 Winton Road, Cincinnati, Ohio 45231

FACSIMILE COVER SHEET
TEL NO. (513) 728-3551 Ext.217
FAX NO. (513) 521-2896

DATE:	September 17, 2009	FAX NO.	(513) 946-4330
TO:	Hamilton County Commissioners	PAGES:	
ATTN:	**Jeff Aluotto**		(including this cover sheet)
FROM:	**Sally Bauer, Park Planner**	PHONE	

IF YOU HAVE ANY PROBLEM WITH THE RECEPTION OF THESE PAGES, PLEASE CONTACT US AT (513) 728-3551, EXT 264

As required by the Clean Ohio Conservation Program Grant Application, Ohio Revised Code Sec. 164.23, the Hamilton County Park District is consulting with Miami Township regarding the following project:

- Turpin Farm Acquisition – 125 acres
- Avoca Expansion acquisition – 77 acres
- Woodland Mound Expansion acquisition – 2.7 acres
- Mitchell Memorial Forest Expansion – 47 acres
- Dry Fork Creek Restoration in Miami Whitewater forest – this is not an acquisition project.

(See attached project information describing the above project)
No Funds from Hamilton County are involved in this project.

Please respond to this fax indicating you have received this information and acknowledge these applications.

Should you have any questions, please contact Sally Bauer, Park Planner at 728-3551 extension 264.

Hamilton County

County Administrator

County Administration Building
138 East Court Street
Cincinnati, Ohio 45202

Phone (513) 946-4400
Fax (513) 946-4444
TDD/TTY (513) 946-4719
www.hamiltoncountyohio.gov

ADMINISTRATOR
Patrick Thompson
Phone (513) 946-4420

October 12, 2009

Jack Sutton, Park Director
Hamilton County Park District
10245 Winton Road
Cincinnati, OH 45231

Dear Mr. Sutton:

Please accept this correspondence in support of the Park District's Clean Ohio Application focusing on the acquisition of properties for greenspace preservation and streambank stabilization.

The benefits associated with the Park District's application, in terms of streambank stabilization, invasive species removal, and preservation of greenspace fits very well with other strategic environmental initiatives being undertaken by Hamilton County. Specifically, the streambank stabilization projects will assist with the goals of the County's Phase II Stormwater program by helping to reduce sediment loads into local waterways. It is clear that your proposal will greatly assist in improving the environmental quality of our County and thus the quality of life of our residents.

If there is anything additional that I can do to assist with your application, please do not hesitate to contact me.

Sincerely,

Patrick J. Thompson

Cc: David Pepper, County Commissioner
Todd Portune, County Commissioner
Greg Hartmann, County Commissioner
Jeff Aluotto, Assistant County Administrator

Exhibit

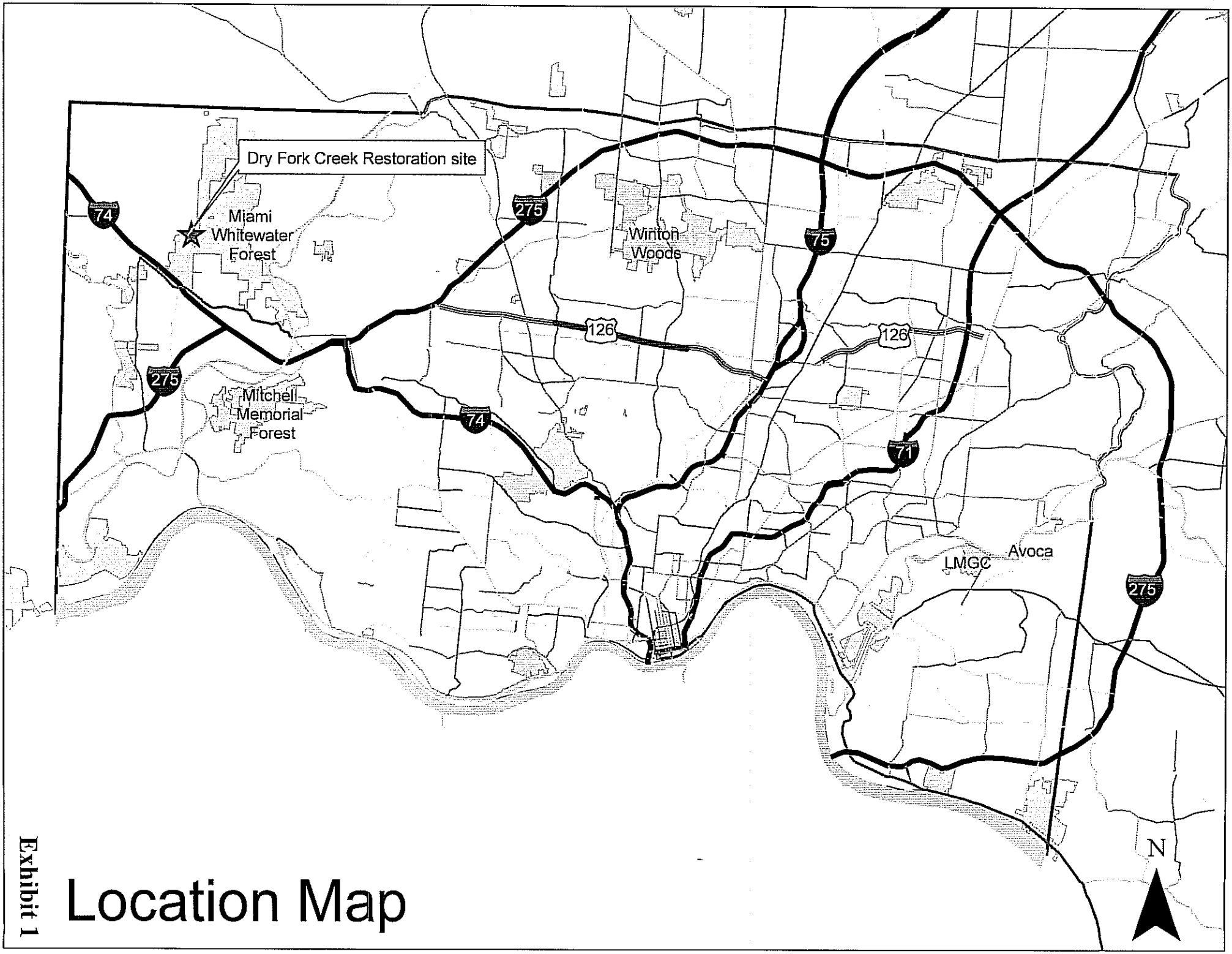
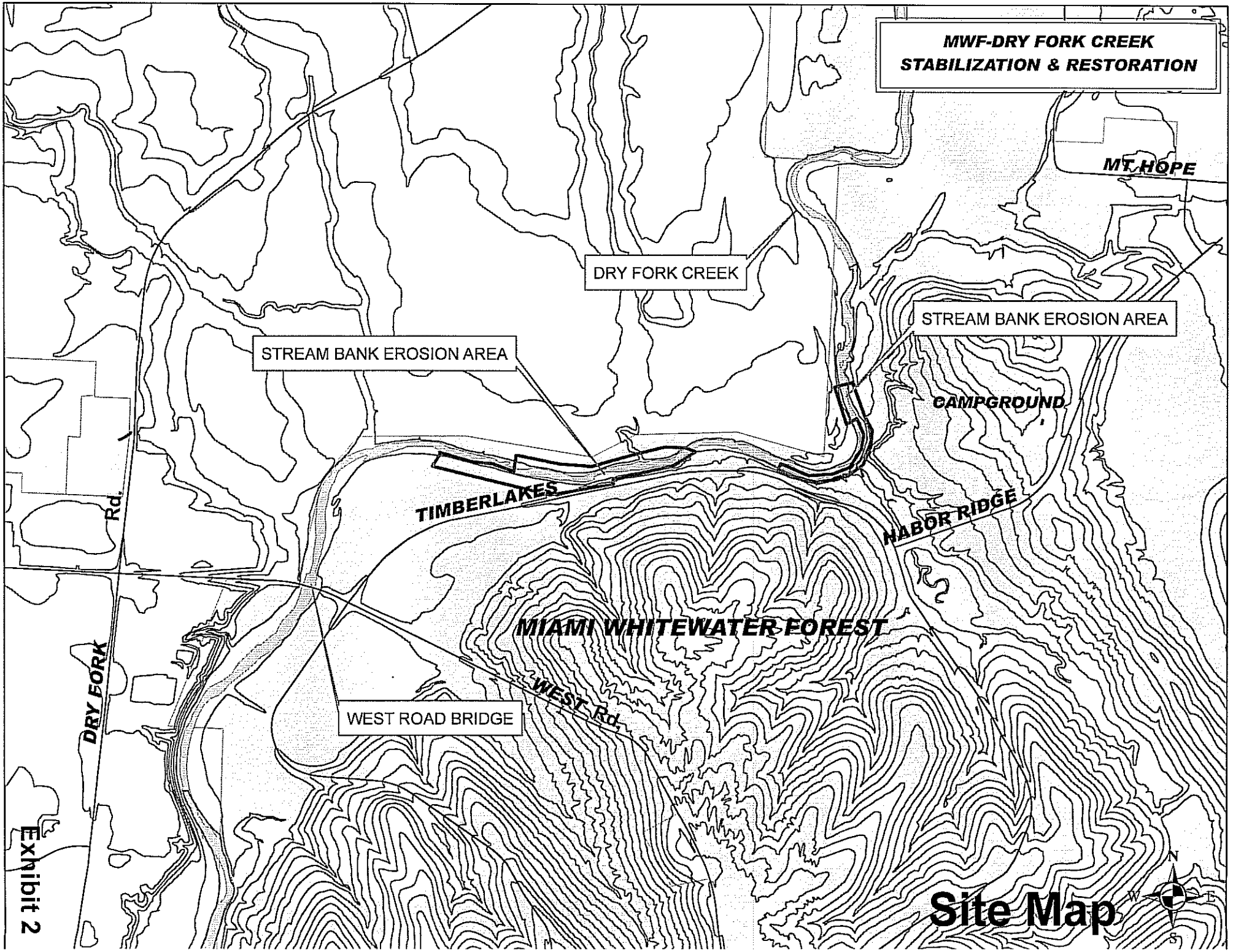


Exhibit 1

Location Map


MWF-DRY FORK CREEK
STABILIZATION & RESTORATION
MT. HOPE
DRY FORK CREEK
STREAM BANK EROSION AREA
STREAM BANK EROSION AREA
CAMPGROUND
TIMBERLAKES
NABOR RIDGE
Rd.
MIAMI WHITEWATER FOREST
DRY FORK
WEST Rd.
WEST ROAD BRIDGE
Exhibit 2
Site Map
N
W
E
S

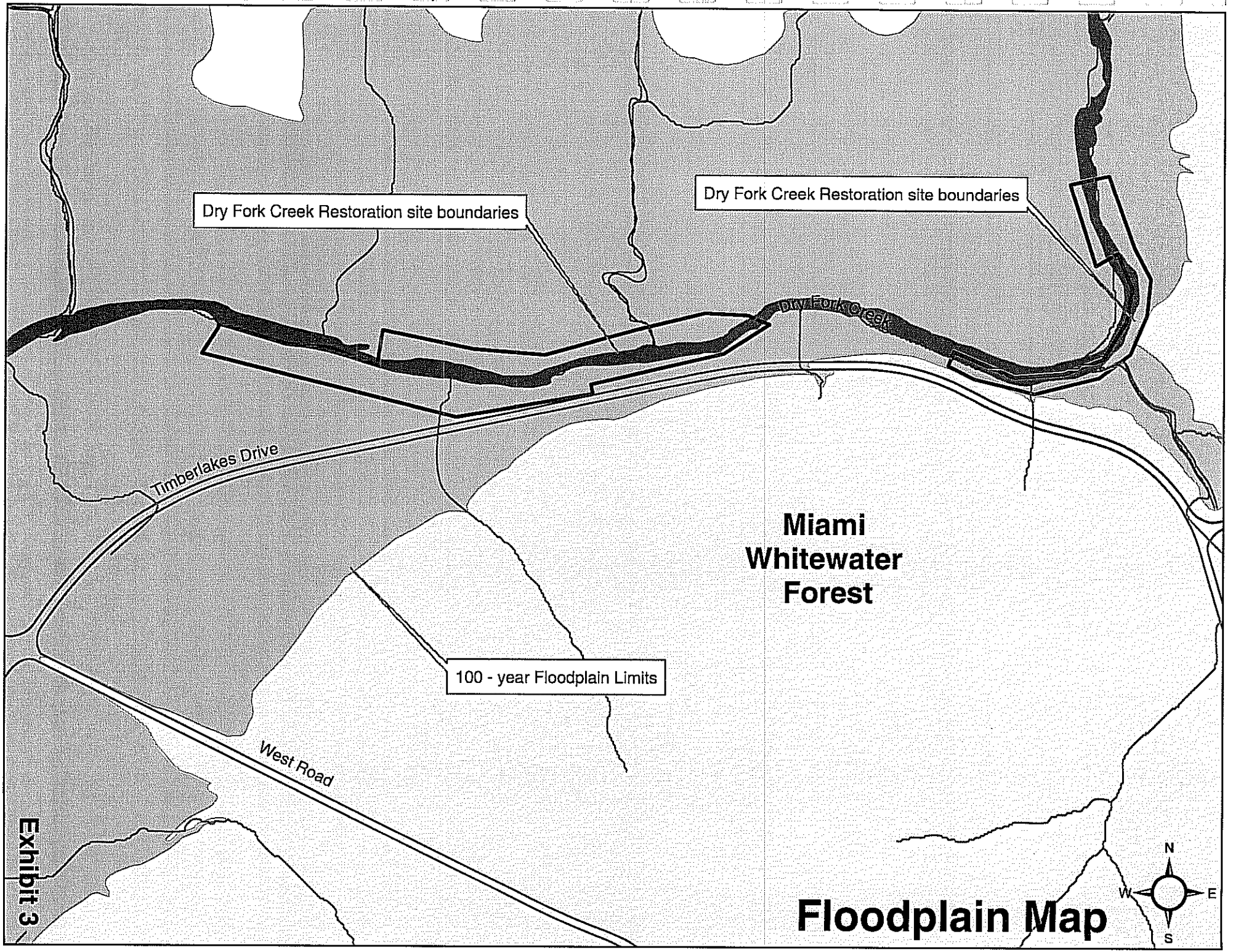


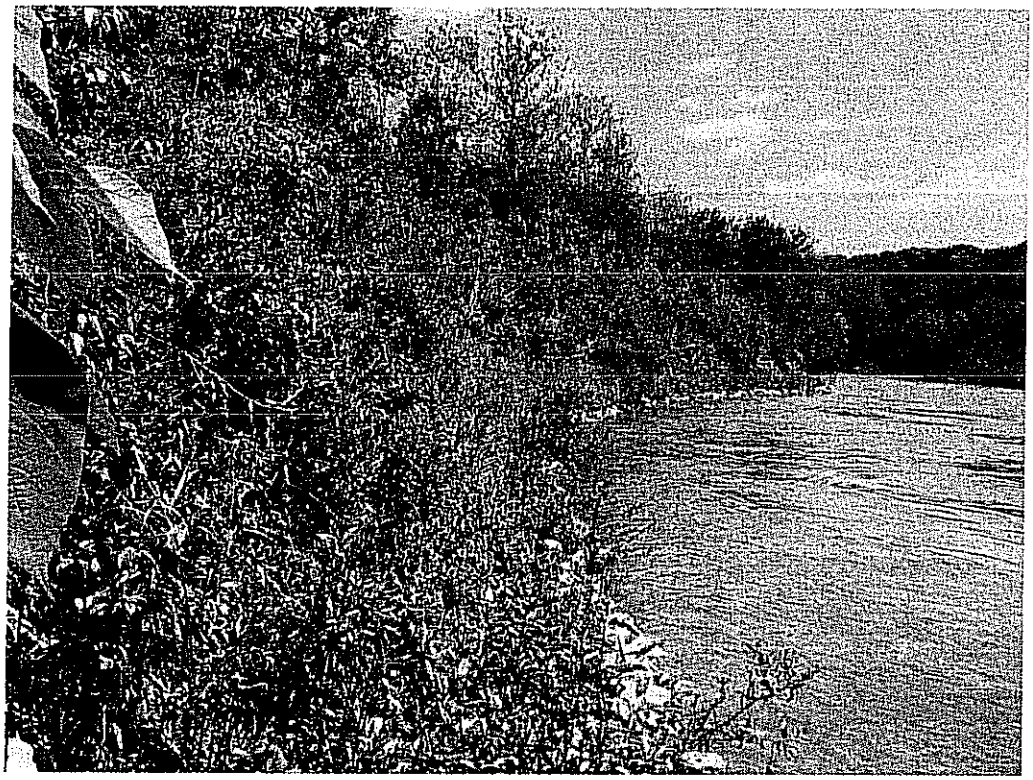
Exhibit 3

Floodplain Map

Lake Isabella Riverbank Stabilization Project – Before

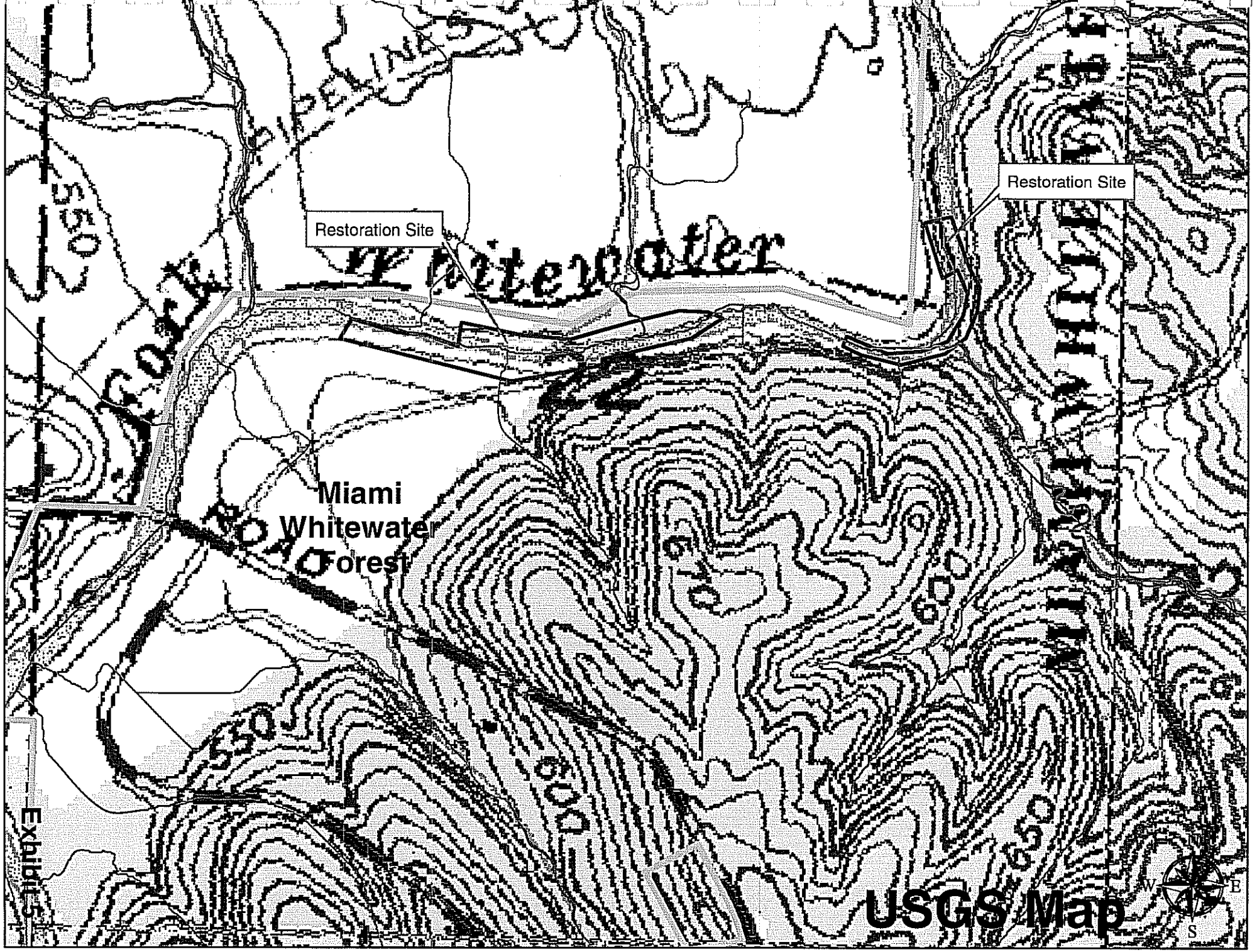
Picture taken in 1995 shows the bank failure along the Little Miami Scenic River at Lake Isabella. Mainstream Restoration Inc. served as the consultant for this engineering project.

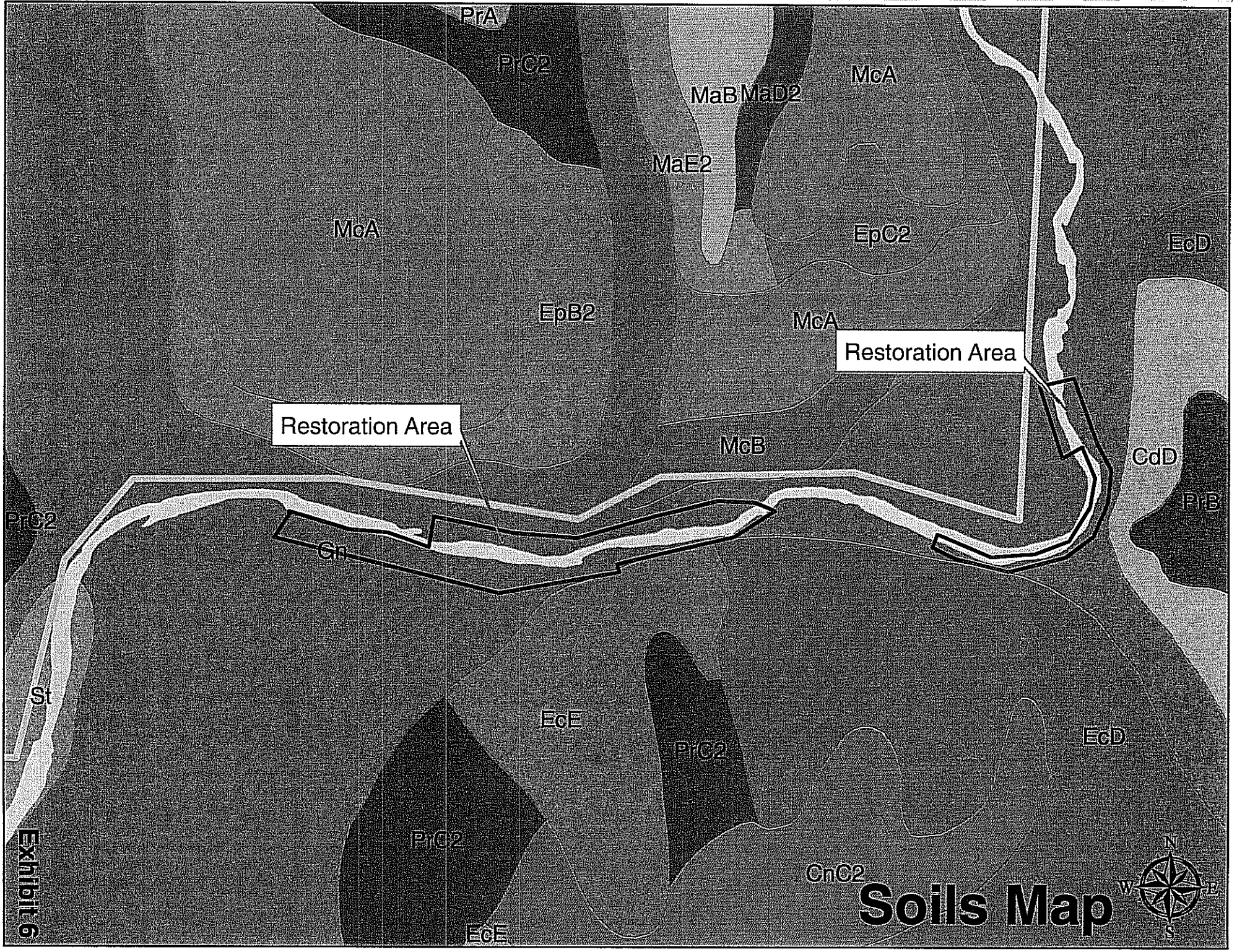
Lake Isabella Riverbank Stabilization Project – After



This picture was taken in 2003, three years after final completion of the bank stabilization project along the Little Miami Scenic River at Lake Isabella. The bank is holding up well and its vegetation continues to mature.

Exhibit 4


Restoration Site
Restoration Site
Miami
Whitewater
Forest
Exhibit 5
USGS Map


PrA
PrC2
MaB MaD2
McA
MaE2
McA
EpC2
EcD
EpB2
McA
Restoration Area
Restoration Area
McB
CdD
PrB
PrC2
Gn
St
EcE
PrC2
EcD
PrC2
CnC2
EcE
N
W
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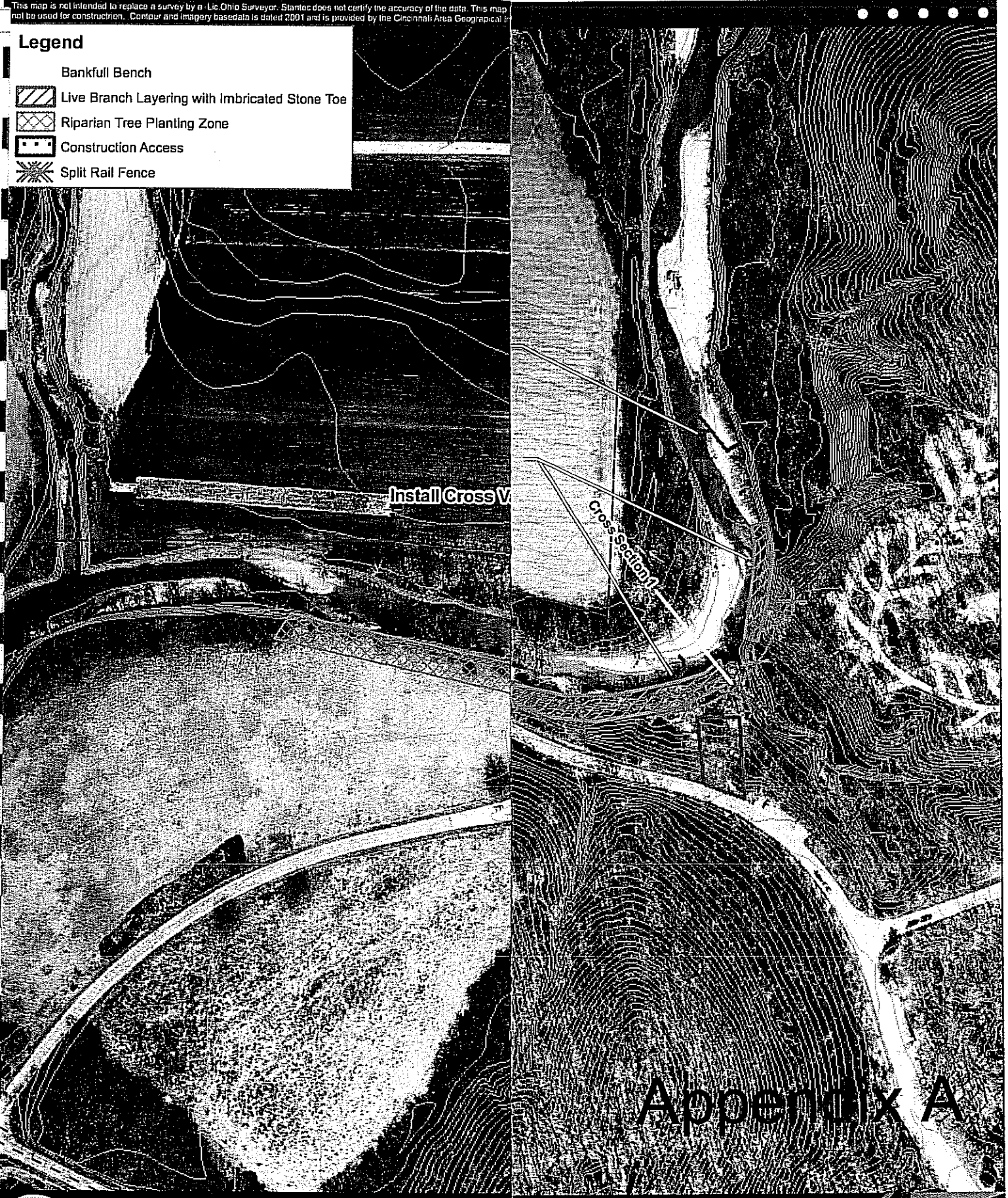
S
Soils Map
Exhibit 6

Appendix



Appendix A

Geographic Information Systems

V:\1756\active\175639014\gis\mxd

ceptual Bank Stabilization Plan

FOR CONSTRUCTION

Hamilton County Park District
Hamilton County, Ohio
Page 1

Stantec

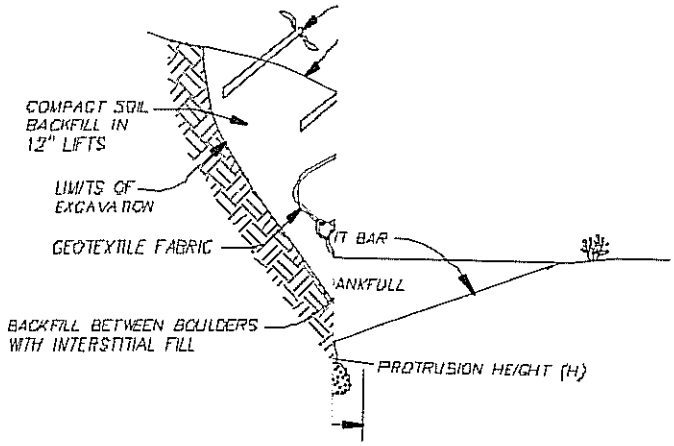
Hamilton County Park District
It's Great Outdoors!

11687 Lebanon Rd. Cincinnati, OH 45241 Phone 513.842.8200 Fax 513.842.8250 www.stantec

Relative Elevation

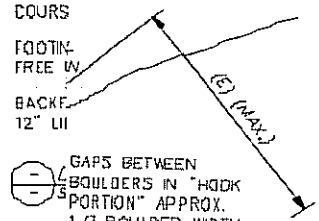
Relative Elevation

Appendix B

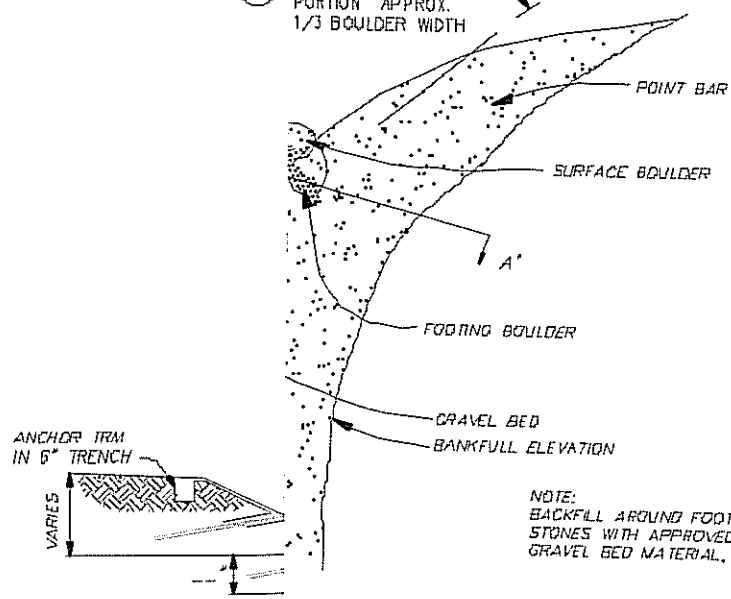


NOTE:

1. PLACE FLUSH
2. EACH L THE LC AXIS C COURS
3. FOOTIN- FREE W
4. BACKF 12" LI



GAPS BETWEEN BOULDERS IN "HOOK PORTION" APPROX. 1/3 BOULDER WIDTH



NOTE:
BACKFILL AROUND FOOTING STONES WITH APPROVED GRAVEL BED MATERIAL.

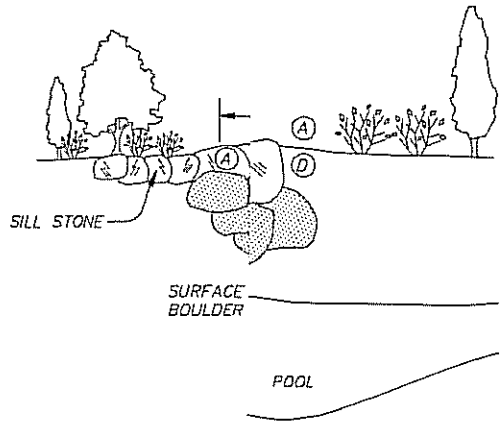
OK VANE

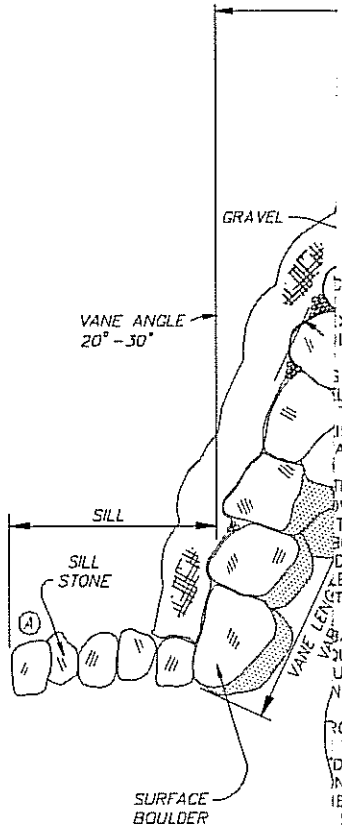
NOTES:

1. PREPARE THI INSTALLING
2. DRIVE LIVE E LENGTH IS E

DET SCALE

Appendix C





ROSS VANE STRUCTURES BY
BANK TO THE GRADES
XCAVATE ENOUGH BED MATERIAL
ILDERS, GEOTEXTILE FABRIC AND
PLACE FOOTING BOULDERS AND
AT THE CHANNEL INVERT AND
LEVATIONS OF THE INVERTS IN
THE PLANS. ONCE THE INVERTS
ISHED THE REMAINDER OF THE
ACE BOULDERS SHALL BE
VOIDS. PLACE GEOTEXTILE
THE UPSTREAM FACE OF THE
WN AND BACKFILL (OVERLAY)
THE VOIDS ON THE UPSTREAM
BOULDERS WITH GRAVEL. DO
D GEOTEXTILE FABRIC AND TRIM
E FABRIC. ONCE STRUCTURE IS
TE SCOUR POOL AND PLACE
AS REQUIRED. RE-DRESSING
BANKFULL BENCH/FLOODPLAIN
UIRED FOLLOWING INSTALLATION
UCTURES AND SHALL BE
NTAL TO CONSTRUCTION.

ROSS, J-HOOK AND LOG VANES
TO A SMOOTH AND COMPACT
DANCE WITH THE LINES, GRADES
NS OR ELEVATIONS SHOWN ON
E DEGREE OF FINISH FOR
SHALL BE WITHIN 1 INCH OF
LEVATIONS INDICATED PROVIDED
NOT EXCEED 2 INCHES. ALL
ALL BE PLUGGED WITH ROCK TO
ING SEAL.

USE AN EXCAVATOR WITH A
TO CONSTRUCT HYDRAULIC

Appendix D

From Davis and Menze, 1996 from the Dry Fork or the Whitewater Basin

Table 1. Fishes collected from Maimi Whitewater Forest. Presence is designated by an "x".

	Davis & Bixby 1995	*Bauer et al. 1978*	*Ohio EPA 1986*	*Davis & Menze 1996*
Lepisosteus osseus	x	-	-	-
Dorosoma cepedianum	x	x	-	-
Ameiurus melas	-	-	-	x
Ameiurus natalis	x	x	x	x
Campostoma anomalum	x	x	x	x
Carpiodes cyprinus	x	x	x	-
Carpoides velifer	x	x	-	-
Catostomus commersoni	x	x	x	x
Cyprinella spiloptera	x	x	x	x
Cyprinus carpio	x	x	x	-
Etheostoma blennioides	x	x	-	-
Etheostoma caeruleum	x	x	-	x
Etheostoma flabellare	x	x	x	x
Etheostoma nigrum	x	x	x	x
Etheostoma spectabile	x	x	x	x
Hypentelium nigricans	x	x	x	x
Ambloplites rupestris	x	-	x	-
Lepomis cyanellus	x	x	x	x
Lepomis macrochirus	x	x	x	x
Lepomis megalotis	x	x	x	x
Hybopsis amblops	-	-	x	-
Hybopsis x-punctata	-	x	-	-
Luxilus chrysocephalus	x	x*	x	x
Lythrurus ardens	x	x	x	x
Micropterus dolomieu	x	x	x	-
Micropterus punctulatus	x	x	-	-
Micropterus salmoides	x	x	x	x
Moxostoma duquensei	-	x	x	-
Moxostoma erythrurum	x	x	x	x
Moxostoma macrolepidotum	-	-	-	-
Notropis buccata	x	x	x	x
Notropis photogenis	-	x	-	-
Notropis rubellus	-	-	x	-
Notropis stramineus	-	x	x	-
Noturus flavus	x	-	-	-
Phenacobius mirabilis	x	x	x	-
Pimephales notatus	x	x	x	x
Pimephales promelas	-	-	-	x
Rhynichthys atratulus	x	x	x	x
Semotilus atromaculatus	x	x	x	x

* reported as *Notropis cornutus.*

Appendix E

Okeana, Butler Co.

Table 6. Fish community summaries based on pulsed DC electrofishing sampling conducted by Ohio EPA in the Dry Fork Whitewater River, July and September, 2005. Relative numbers and weight for the Dry Fork Whitewater River sites are per 0.3 km.

Stream/ River Mile	Mean Number of Species	Total Number Species	Mean Relative Number	Mean Relative Weight (kg)	QHEI	Mean Modified Index of Well-Being	Mean Index of Biotic Integrity	Narrative Evaluation
Dry Fork Whitewater River (2005)								
16.6	24.0	26	1651	71.91	74.0	10.1	53	Exceptional
15.9	25.5	28	1816	41.78	75.0	9.6	53	Exceptional
15.6	23.0	26	3168	46.60	77.0	10.1	51	Exceptional

Ecoregion Biocriteria: Eastern Corn Belt Plains (ECBP)
(Ohio Administrative Code 3745-1-07, Table 7-15)

INDEX	WWH	EWH	MWH[a]
IBI-Wading	40	50	24
MIwb - Wading	8.3	9.4	6.2

[a] Modified Warmwater Habitat for channel modified areas.
* Significant departure from ecoregion biocriterion; poor and very poor results are underlined.
[ns] Nonsignificant departure from ecoregion biocriterion (≤4 IBI units, ≤0.5 MIwb units).

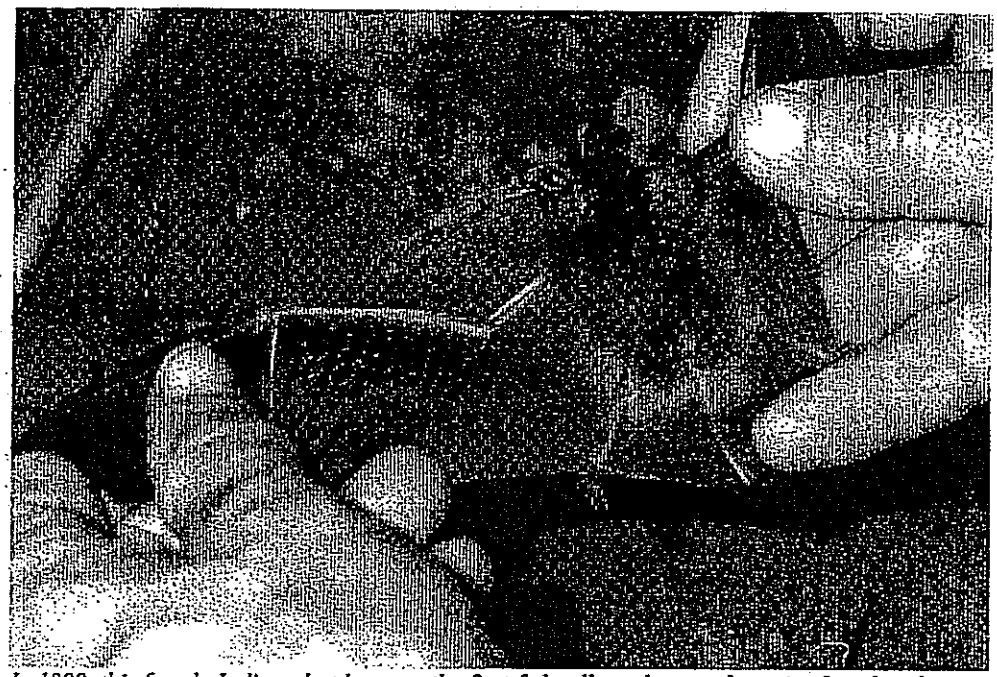
WILDLIFE HABITAT COUNCIL

Case Study 13

Fernald Case Study	
Name and Location	**Site Name:** Fernald **Site Location:** Southwest Ohio
Site Description	Formerly produced uranium metal for the USDOE Nuclear weapons complex. It is currently listed on the National Priorities list (NPL) and is undergoing CERCLA remediation. The site covers 1000 acres and the entire site will undergo natural resource restoration following remediation
Site Reuse Description	The end use is designated as an educational Park focusing on site history and ecology. Restoration is well integrated with remediation by taking advantage of post-excavation topography to determine the habitat type. Deep excavation and stormwater retention basins are readily converted to ponds and wetlands. Excavations into subsoil are being converted to native grasslands due to their ability to compete well on low nutrient soils. The federally listed endangered Indiana Bat has been documented on-site and restorations are intended to improve that habitat. Infiltration basins are being developed adjacent to wetlands to aid in groundwater remediation (i.e. natural injection wells) The decision to implement restoration on the site was and combination of public participation and the state of Ohio NRD claim
Stakeholder Involvement	A 30 day public comment period will be held on two separate documents. One of the documents is the NRRP. The second document for public comment is DOE's *Environmental Assessment for Proposed Final Land Use* (EA). This NEPA document presented DOE's preferred final land use for the Fernald site. The preferred alternative is natural resource restoration for the majority of the site with the exception of 115 acres occupied by the On-Site Disposal Facility and 23 acres for potential commercial development. The public comment period on both the NRRP and the EA ended October 20, 1998. Who were the stakeholders/partners in this site and were their roles/contributions? What were the concerns of these stakeholders and how were these resolved? Did any of these stakeholders/partners make a financial contribution to the

Fernald Closure Project

Fernald's Natural Resources



In 1999, this female Indiana bat became the first federally endangered species found at the Fernald site (7215-2).

The Fernald site is located within the mixed mesophytic region of the eastern deciduous forest. A mixed mesophytic community is characterized by the presence of a wide variety of deciduous hardwood trees, including maple, oak, ash, beech, and hickory species. The primary habitat types at the Fernald site are as follows:

- **Upland forest**
  In wooded areas of the site, tree species are indicative of a mixture of beech-maple and oak-hickory forests. In two separate areas of the site (the northeast and southwest corners of the former production area), several evergreen species have been densely planted.

- **Riparian forest**
  Paddys Run Stream and several drainage ditches are located on the property. Paddys Run is a large stream (it has an average channel width of approximately 50 feet) that drains into the Great Miami River. Where wooded, the plant species along the riparian corridor are indicative of riparian forest.

- **Open field**
  Many grassy areas of the site have been maintained by mowing or leasing to a local farmer for cattle grazing throughout the production years. Species types are indicative of a mowed meadow.

Secondary, yet significant habitat types at the Fernald site include the following:

- **Wetlands**
  A 1993 wetlands delineation survey identified 35.9 acres of wetlands at the Fernald site. The largest contiguous wetland is a forested wetland that lies within the northern woodlot. DOE has agreed to preserve these existing wetlands to the extent possible. To compensate for the approximately 10 acres of wetlands that will be drained or filled during remediation, DOE has agreed to a 1.5:1 mitigation ratio, resulting in approximately 15 acres of new wetlands for the Fernald site.

- **Floodplains**
  Much of the area surrounding Paddys Run includes the stream's floodplain. This significant habitat and the associated riparian habitat will be preserved during site remediation and restored where necessary.

- **Threatened or Endangered Species Habitat**
  As documented in the 1992 Sitewide Characterization Report, the Fernald site contains suitable habitat for several state or federally listed species, including the state threatened Sloans crayfish (*Orconectes sloanii*), the state endangered cave salamander (*Eurycae lucifuga*) and the federally endangered Indiana bat (*Myotis sodalis*). During population surveys conducted on site, the Sloans crayfish was found and identified in the northern portion of Paddys Run. The Indiana bat was also found and identified on site along the northern Paddys Run corridor. The habitat for these species will be preserved and enhanced as necessary through restoration.

For More Information

Contact Sue Walpole, S. M. Stoller, at 513-648-4026, e-mail:
Sue.Walpole@lm.doe.gov

Aesthetic Barrier | Bank Stabilization | Cleanup | Cultural Resources | Ecological Restoration | Ecological Restoration Park | Environmental Monitoring | Fernald's Natural Resources | Final Land Use | Demo Forest Project | Future of Fernald | OEPA | Public Use of Fernald Site | Research Projects | Restoration Projects | Restoration Project Schedule | Southern Waste Units | Wetland Mitigation

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Together, DOE and Fluor Fernald were committed to safely restoring the Fernald site to an end state that serves the needs of the community.

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Osprey at Miami-Whitewater

Records 1 - 2 of 2 Records

Osprey	4	20	2007	1	BSchl	Miami-Whitewater
Osprey	10	7	2006	1	LP	Miami-Whitewater

Run a New Report

Comments? Suggestions?
Let me know!
Ned Keller, comments03@cincinnatibirds.com

Appendix G

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Least Bittern at Miami-Whitewater

Records 1 - 5 of 5 Records

Least Bittern	5	14	2006	1	RF	Miami-Whitewater
Least Bittern	5	19	2007	+	PW	Miami-Whitewater
Least Bittern	5	24	2008	1	PW	Miami-Whitewater
Least Bittern	6	1	2008	3	PW	Miami-Whitewater
Least Bittern	6	3	2006	1	JLh	Miami-Whitewater

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Yellow-bellied Sapsucker at Miami-Whitewater

Records 1 - 3 of 3 Records

Yellow-bellied Sapsucker	4	25	2007	+	JNi,MNi	Miami-Whitewater
Yellow-bellied Sapsucker	10	28	2007	2	NCd	Miami-Whitewater
Yellow-bellied Sapsucker	12	20	2008	1	ASc	Miami-Whitewater

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American Bittern at Miami-Whitewater

Records 1 - 1 of 1 Records

American Bittern 5 19 2007 + PW Miami-Whitewater

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Sandhill Crane at Miami-Whitewater

Records 1 - 9 of 9 Records

Sandhill Crane	1	12	2009	1	JoJ	Miami-Whitewater
Sandhill Crane	1	15	2009	1	ABe	Miami-Whitewater
Sandhill Crane	2	13	2009	4	FF	Miami-Whitewater
Sandhill Crane	2	23	2007	2	KWe	Miami-Whitewater
Sandhill Crane	3	1	2007	50	FF	Miami-Whitewater
Sandhill Crane	3	1	2008	4	PW	Miami-Whitewater
Sandhill Crane	3	4	2007	65	DCn	Miami-Whitewater
Sandhill Crane	3	17	2007	1	JLh	Miami-Whitewater
Sandhill Crane	11	23	2007	40	JoJ	Miami-Whitewater

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Northern Harrier at Miami-Whitewater

Records 1 - 19 of 19 Records

Northern Harrier	1	16	2009	2	JFro	Miami-Whitewater
Northern Harrier	1	18	2009	1	EBu	Miami-Whitewater
Northern Harrier	1	25	2009	2	KWe	Miami-Whitewater
Northern Harrier	1	26	2008	9	PW	Miami-Whitewater
Northern Harrier	2	2	2009	1	TU	Miami-Whitewater
Northern Harrier	2	18	2009	5	ACl	Miami-Whitewater
Northern Harrier	2	23	2008	3	PW	Miami-Whitewater
Northern Harrier	3	1	2008	8	PW	Miami-Whitewater
Northern Harrier	3	29	2008	2	WW, Oxbow	Miami-Whitewater
Northern Harrier	9	1	2008	2	EBu,KWe	Miami-Whitewater
Northern Harrier	9	27	2008	3	ASc	Miami-Whitewater
Northern Harrier	9	28	2008	1	DB+	Miami-Whitewater
Northern Harrier	10	4	2008	1	PW	Miami-Whitewater
Northern Harrier	10	5	2008	+	SBo,OWa	Miami-Whitewater
Northern Harrier	10	25	2008	1	PW	Miami-Whitewater
Northern Harrier	11	4	2008	2	SCa,MOt	Miami-Whitewater
Northern Harrier	12	5	2008	6	PW	Miami-Whitewater
Northern Harrier	12	7	2008	3	fide PW	Miami-Whitewater
Northern Harrier	12	18	2008	7	PW	Miami-Whitewater

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Lark Sparrow at Miami-Whitewater

Records 1 - 1 of 1 Records

Lark Sparrow 4 6 2006 1 DSi fide DRu Miami-Whitewater

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Golden-winged Warbler at Miami-Whitewater

Records 1 - 1 of 1 Records

Golden-winged Warbler 9 14 2006 1 ABe Miami-Whitewater

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Hamilton County Park District- Annual Bird Count

December 13, 2008

Fern- Fernbank
ARM-Armleder
WWRT-Whitewater river Tracts-Summe,Campbell Lakes, Kilby tracts

EWNP - Embshoff Woods & Nature Preserve
FWNP - Farbach Werner Nature Preserve
NWS - Newberry Wildlife Sanctuary
KH/LMGC - Kroger Hill/Little Miami Golf Center
LI - Lake Isabella
SW - Sharon Woods
MWF - Miami Whitewater Forest

RFP - Richardson Forest Preserve
SL - Shawnee Lookout
WW/TT - Winton Woods/Trillium Trails
WNP - Withrow Nature Preserve
WM - Woodland Mound
TC - Triple Creek
MMF - Mitchell Memorial Forest

	EWNP	FERN	FWNP	NWS	ARM	KH/LMGC	LI	SW	MWF	WWRT	RFP	SL	WW/TT	WNP	WM	TC	MMF	TOTAL
Pied-billed Grebe		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Double-crested Cormoran	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Great Blue Heron	0	1	0	0	5	6	1	0	0	22	1	3	7	0	0	0	1	47
Canada Goose	0	0	0	0	45	224	24	77	167	399	0	115	304	0	18	0	0	1373
Mallard	0	3	0	0	41	101	10	123	48	205	0	352	52	0	0	16	0	951
Black Duck	0	0	0	0	2	0	0	0	11	5	0	6	0	0	0	0	0	24
Wood Duck	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Green-winged Teal	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	8
Hooded Merganser	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Sharp-Shinned Hawk	0	0	1	0	1	0	0	2	0	0	0	0	0	0	0	0	1	5
Cooper's Hawk	0	1	1	1	0	0	0	1	1	1	0	0	3	0	0	0	0	9
Red-tailed Hawk	0	1	0	0	6	8	0	2	2	6	0	11	11	2	0	1	0	50
Red-shouldered Hawk	0	1	2	0	1	0	0	0	1	0	1	0	6	0	1	1	0	14
Rough-legged Hawk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northern Harrier	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
American Kestrel	0	0	0	0	2	1	0	0	6	1	0	0	0	0	0	0	0	10
Bobwhite	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Sandhill Crane	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	130	131
Killdeer	0	0	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	4
Ring-billed Gull	0	50	0	0	1	18	0	0	0	27	0	1	75	0	0	19	0	191
Rock Dove	8	0	20	0	1	9	20	11	30	0	34	0	0	0	0	36	0	169
Mourning Dove	8	2	9	0	24	11	3	15	25	72	3	6	31	5	4	7	1	226
Screech Owl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Great Horned Owl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barred Owl	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Saw-whet Owl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belted Kingfisher	0	0	0	0	2	1	2	2	1	7	0	3	3	0	0	0	0	21
Common Flicker	0	0	0	0	7	1	2	3	8	13	0	9	17	0	4	6	4	74
Yellow-bellied Sapsucker	0	1	0	0	1	3	1	0	6	1	0	0	7	0	3	0	4	27
Red-headed Woodpecker	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Hamilton County Park District- Annual Bird Count

December 13, 2008

Fern- Fernbank
ARM-Armleder
WWRT-Whitewater river Tracts-Summe,Campbell Lakes, Kilby tracts

EWNP - Embshoff Woods & Nature Preserve
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	EWNP	FERN	FWNP	NWS	ARM	KH/LMGC	LI	SW	MWF	WWRT	RFP	SL	WW/TT	WNP	WM	TC	MMF	TOTAL
Pied-billed Grebe		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Double-crested Cormoran	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Great Blue Heron	0	1	0	0	5	6	1	0	0	22	1	3	7	0	0	0	1	47
Canada Goose	0	0	0	0	45	224	24	77	167	399	0	115	304	0	18	0	0	1373
Mallard	0	3	0	0	41	101	10	123	48	205	0	352	52	0	0	16	0	951
Black Duck	0	0	0	0	2	0	0	0	11	5	0	6	0	0	0	0	0	24
Wood Duck	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Green-winged Teal	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	8
Hooded Merganser	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Sharp-Shinned Hawk	0	0	1	0	1	0	0	2	0	0	0	0	0	0	0	0	1	5
Cooper's Hawk	0	1	1	1	0	0	0	1	1	1	0	0	3	0	0	0	0	9
Red-tailed Hawk	0	1	0	0	6	8	0	2	2	6	0	11	11	2	0	1	0	50
Red-shouldered Hawk	0	1	2	0	1	0	0	0	1	0	1	0	6	0	1	1	0	14
Rough-legged Hawk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northern Harrier	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
American Kestrel	0	0	0	0	2	1	0	0	6	1	0	0	0	0	0	0	0	10
Bobwhite	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Sandhill Crane	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	130	131
Killdeer	0	0	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	4
Ring-billed Gull	0	50	0	0	1	18	0	0	0	27	0	1	75	0	0	19	0	191
Rock Dove	8	0	20	0	1	9	20	11	30	0	34	0	0	0	0	36	0	169
Mourning Dove	8	2	9	0	24	11	3	15	25	72	3	6	31	5	4	7	1	226
Screech Owl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Great Horned Owl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barred Owl	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Saw-whet Owl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belted Kingfisher	0	0	0	0	2	1	2	2	1	7	0	3	3	0	0	0	0	21
Common Flicker	0	0	0	0	7	1	2	3	6	13	0	9	17	0	4	6	4	74
Yellow-bellied Sapsucker	0	1	0	0	1	3	1	0	6	1	0	0	7	0	3	0	4	27
Red-headed Woodpecker	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

	EWNP	FERN	FWNP	NWS	ARM	KH/LMGC	LI	SW	MWF	WWRT	RFP	SL	WW/TT	WNP	WM	TC	MMF	TOTAL
Pileated Woodpecker	1	0	0	1	2	4	0	1	7	0	0	3	3	3	2	3	5	35
Hairy Woodpecker	0	0	1	0	1	2	0	2	2	1	0	5	6	1	5	5	0	31
Downy Woodpecker	2	1	0	3	30	17	10	12	21	8	11	15	40	2	5	8	14	199
Red-bellied Woodpecker	6	2	0	1	15	19	5	23	28	10	15	15	37	7	13	4	12	212
Horned Lark	0	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	33
Blue Jay	6	0	0	0	6	2	2	3	29	3	9	9	20	7	15	0	4	114
Common Crow	5	2	8	11	325	1080	2	8	52	9	8	375	19	2	36	38	18	1996
Carolina Chickadee	15	8	8	15	68	64	30	59	73	70	67	65	144	27	52	35	59	859
Tufted Titmouse	3	5	4	0	33	22	10	12	36	27	14	81	33	17	19	29	25	370
White-breasted Nuthatch	0	2	1	1	10	7	3	5	25	20	10	29	21	8	7	6	6	161
Red-breasted Nuthatch	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Brown Creeper	1	0	0	0	11	3	0	3	1	0	1	2	4	0	0	2	3	31
Winter Wren	0	0	0	0	1	0	0	0	0	0	0	1	3	0	0	0	0	5
Carolina Wren	2	11	6	0	38	32	13	6	12	6	6	36	48	0	5	12	5	238
Mockingbird	0	1	0	0	0	1	0	0	9	0	1	0	5	0	0	2	0	19
American Robin	273	8	5	14	231	700	42	247	118	623	610	85	1278	40	254	162	125	4835
Hermit Thrush	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Eastern Bluebird	0	0	0	0	6	0	7	0	12	11	0	16	4	0	4	0	12	72
Golden-crowned Kinglet	0	2	0	0	2	12	1	7	15	5	0	0	15	4	0	0	6	69
Cedar Waxwing	40	0	0	0	55	20	30	1	14	8	20	0	1	0	0	0	251	440
Starling	35	112	6	0	1015	2977	168	32	50	337	1060	22	1969	60	188	317	6	8354
Yellow-rumped Warbler	0	0	0	0	62	1	4	3	0	1	0	0	11	0	0	0	0	82
House Sparrow	0	0	14	0	0	14	0	34	2	0	0	0	75	0	0	11	0	150
Eastern Meadowlark	0	0	0	0	16	0	0	0	0	5	0	0	0	0	0	0	0	21
Red-winged Blackbird	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
Common Grackle	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Brown-headed Cowbird	0	0	0	0	0	1	0	0	0	0	0	8	0	0	0	0	0	9
Cardinal	67	8	4	5	30	88	20	28	16	48	34	58	254	22	63	33	31	809
Purple Finch	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8
House Finch	2	2	0	0	0	6	0	40	32	0	0	12	36	0	5	0	1	136
American Goldfinch	13	2	8	0	85	28	5	17	91	72	8	18	93	0	14	17	17	486
Rufous-sided Towhee	2	0	0	0	2	2	1	0	3	1	11	10	6	9	1	0	7	55
Savannah Sparrow	0	0	0	0	23	0	0	0	0	1	0	0	1	0	0	0	0	25
Dark-eyed Junco	0	2	4	0	1	42	5	9	38	8	0	11	58	0	15	7	17	217
Tree Sparrow	0	0	0	0	105	16	0	0	75	50	10	58	98	0	1	0	0	413
Field Sparrow	0	0	1	0	4	0	0	0	0	6	0	2	1	0	0	0	0	14
White-crowned Sparrow	0	0	0	0	4	0	0	0	60	49	0	0	6	0	0	0	0	119
White-throated Sparrow	28	0	8	0	31	65	5	3	22	20	48	42	158	0	17	38	10	495
Fox Sparrow	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
Lincoln's Sparrow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Swamp Sparrow	0	0	0	0	46	0	0	1	0	1	0	71	7	0	0	0	0	126
Song Sparrow	5	1	2	0	308	31	3	4	18	6	9	158	119	0	3	44	24	735

Gadwall	0	0	0	0	0	0	16	0	0	9	0	0	0	0	0	0	0	25
	EWNP	FERN	FWNP	NWS	ARM	KH/LMGC	LI	SW	MWF	WWRT	RFP	SL	WW/TT	WNP	WM	TC	MMF	TOTAL
Turkey Vulture	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	2
Black Vulture	0	0	0	0	2	11	0	0	0	0	0	0	0	0	0	0	14	27
American Bald Eagle	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3
American Coot	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	15
Eastern Phoebe	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
Grey Catbird	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Ruby-crowned Kinglet	0	0	1	0	0	0	0	1	1	1	0	0	0	0	0	0	1	5
Evening Grosbeak	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
Wild Turkey	0	0	0	0	0	0	0	0	11	0	1	3	0	0	0	0	0	15
Unidentified Acipiter	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	2
White-winged Crossbill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Merlin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Short-eared Owl	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
TOTAL BIRDS	521	229	114	52	2745	5655	446	799	1196	2193	1991	1724	5093	216	755	880	815	25424
TOTAL SPECIES	22	24	23	9	50	43	30	35	48	44	24	37	45	16	27	26	31	78
Weather:	Sunny low of 16 deg. And high 38																	
Participants:	102																	

Species List

River Code: 14-302	Stream: Dry Fork	Sample Date: 2005
River Mile: 16.60	Location: adj. S.R. 126, at confl. Buck Run	Date Range: 07/29/2005
Time Fished: 5100 sec	Drainage: 37.0 sq mi	Thru: 09/23/2005
Dist Fished: 0.30 km	Basin: Great Miami River No of Passes: 2	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Quillback Carpsucker	C	O	M		6	6.00	0.36	0.30	0.42	50.00
Black Redhorse	R	I	S	I	79	79.00	4.78	13.12	18.24	166.03
Golden Redhorse	R	I	S	M	29	29.00	1.76	4.81	6.69	165.82
Northern Hog Sucker	R	I	S	M	73	73.00	4.42	3.27	4.54	44.77
White Sucker	W	O	S	T	17	17.00	1.03	2.17	3.02	127.70
Common Carp	G	O	M	T	2	2.00	0.12	2.95	4.10	1,475.00
Creek Chub	N	G	N	T	2	2.00	0.12	0.01	0.01	3.00
Rosefin Shiner	N	I	S	M	33	33.00	2.00	0.08	0.10	2.29
Striped Shiner	N	I	S		283	283.00	17.14	3.83	5.32	13.53
Spotfin Shiner	N	I	M		57	57.00	3.45	0.54	0.74	9.39
Sand Shiner	N	I	M	M	93	93.00	5.63	0.29	0.40	3.07
Silverjaw Minnow	N	I	M		6	6.00	0.36	0.03	0.04	4.67
Bluntnose Minnow	N	O	C	T	60	60.00	3.63	0.25	0.34	4.08
Central Stoneroller	N	H	N		511	511.00	30.95	5.88	8.18	11.51
Yellow Bullhead		I	C	T	4	4.00	0.24	0.57	0.79	141.50
Rock Bass	S	C	C		27	27.00	1.64	2.98	4.14	110.38
Smallmouth Bass	F	C	C	M	107	107.00	6.48	28.56	39.71	266.88
Largemouth Bass	F	C	C		20	20.00	1.21	0.95	1.32	47.44
Green Sunfish	S	I	C	T	5	5.00	0.30	0.13	0.18	26.00
Bluegill Sunfish	S	I	C	P	14	14.00	0.85	0.13	0.18	9.28
Longear Sunfish	S	I	C	M	22	22.00	1.33	0.60	0.83	27.21
Johnny Darter	D	I	C		2	2.00	0.12	0.00	0.01	2.00
Greenside Darter	D	I	S	M	51	51.00	3.09	0.18	0.26	3.61
Rainbow Darter	D	I	S	M	81	81.00	4.91	0.16	0.23	2.02
Orangethroat Darter	D	I	S		11	11.00	0.67	0.04	0.05	3.18
Fantail Darter	D	I	C		56	56.00	3.39	0.11	0.15	1.97
Mile Total					1,651	1,651.00		71.91		
Number of Species					26					
Number of Hybrids					0					

Appendix Table 6. Fish IBI and MIwb results for the Dry Fork Whitewater River, 2005.

River Mile	Type	Date	Drainage area (sq mi)	Number of: Total species	Sunfish species	Sucker species	Intolerant species	Darter species	Percent of Individuals: Simple Lithophils	Tolerant fishes	Omni-vores	Top carnivores	Insect-ivores	DELT anomalies	Rel.No. minus tolerants /(0.3km)	IBI	Modified Iwb
Dry Fork Whitewater - (14302)																	
Year: 2005																	
16.60	E	07/29/2005	37	24(5)	4(5)	4(5)	1(1)	5(5)	35(3)	7(5)	6(5)	8.0(5)	53(3)	0.0(5)	2046(5)	52	10.3
16.60	E	09/23/2005	37	22(5)	4(5)	5(5)	1(1)	4(3)	49(5)	2(5)	3(5)	12.0(5)	57(5)	0.0(5)	1076(5)	54	9.9
15.90	E	07/20/2005	41	26(5)	4(5)	4(5)	2(1)	5(5)	49(5)	20(5)	17(5)	2.1(3)	62(5)	0.0(5)	1776(5)	54	9.7
15.90	E	09/23/2005	41	24(5)	4(5)	5(5)	2(1)	3(3)	61(5)	24(5)	21(3)	7.9(5)	58(5)	0.0(5)	1063(5)	52	9.6
15.60	E	07/20/2005	42	24(5)	3(3)	4(5)	1(1)	5(5)	41(5)	12(5)	9(5)	1.8(3)	57(5)	0.0(5)	3096(5)	52	10.4
15.60	E	09/23/2005	42	22(5)	3(3)	5(5)	1(1)	3(3)	41(5)	5(5)	3(5)	5.1(5)	48(3)	0.0(5)	2704(5)	50	9.8

Appendix H

na - Qualitative data, Modified Iwb not applicable.

♦ - IBI is low end adjusted.

* - < 200 Total individuals in sample

** - < 50 Total individuals in sample

● - One or more species excluded from IBI calculation.

Species List

River Code: 14-302	Stream: Dry Fork	Sample Date: 2005
River Mile: 15.60	Location: Okeana-Drewersburg Rd.	Date Range: 07/20/2005
Time Fished: 5100 sec	Drainage: 42.0 sq mi	Thru: 09/23/2005
Dist Fished: 0.30 km	Basin: Great Miami River No of Passes: 2	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Quillback Carpsucker	C	O	M		5	5.00	0.16	0.23	0.49	46.00
Black Redhorse	R	I	S	I	68	68.00	2.15	6.72	14.42	98.79
Golden Redhorse	R	I	S	M	8	8.00	0.25	1.04	2.24	130.30
Northern Hog Sucker	R	I	S	M	60	60.00	1.89	2.55	5.48	42.54
White Sucker	W	O	S	T	93	93.00	2.94	7.80	16.74	83.87
Blacknose Dace	N	G	S	T	1	1.00	0.03	0.00	0.00	2.00
Creek Chub	N	G	N	T	58	58.00	1.83	1.27	2.72	21.88
Rosefin Shiner	N	I	S	M	86	86.00	2.71	0.23	0.49	2.66
Striped Shiner	N	I	S		687	687.00	21.69	8.40	18.03	12.23
Spotfin Shiner	N	I	M		29	29.00	0.92	0.10	0.21	3.33
Sand Shiner	N	I	M	M	260	260.00	8.21	0.54	1.17	2.09
Silverjaw Minnow	N	I	M		64	64.00	2.02	0.25	0.54	3.94
Bluntnose Minnow	N	O	C	T	111	111.00	3.50	0.35	0.75	3.15
Central Stoneroller	N	H	N		1,117	1,117.00	35.26	8.89	19.07	7.95
Yellow Bullhead		I	C	T	4	4.00	0.13	0.15	0.32	36.75
Rock Bass	S	C	C		10	10.00	0.32	1.02	2.19	102.00
Smallmouth Bass	F	C	C	M	48	48.00	1.52	4.36	9.35	90.81
Largemouth Bass	F	C	C		46	46.00	1.45	1.04	2.24	22.69
Green Sunfish	S	I	C	T	1	1.00	0.03	0.02	0.04	20.00
Bluegill Sunfish	S	I	C	P	1	1.00	0.03	0.01	0.02	10.00
Longear Sunfish	S	I	C	M	30	30.00	0.95	0.90	1.93	30.02
Johnny Darter	D	I	C		5	5.00	0.16	0.01	0.01	1.00
Greenside Darter	D	I	S	M	180	180.00	5.68	0.47	1.00	2.60
Rainbow Darter	D	I	S	M	112	112.00	3.54	0.15	0.32	1.33
Orangethroat Darter	D	I	S		1	1.00	0.03	0.00	0.00	1.00
Fantail Darter	D	I	C		83	83.00	2.62	0.10	0.22	1.26
Mile Total					3,168	3,168.00		46.60		
Number of Species					26					
Number of Hybrids					0					

Species List

River Code: 14-302	Stream: Dry Fork	Sample Date: 2005
River Mile: 15.90	Location: adj. Sportsman 25 Gun Club	Date Range: 07/20/2005
Time Fished: 5100 sec	Drainage: 41.0 sq mi	Thru: 09/23/2005
Dist Fished: 0.32 km	Basin: Great Miami River No of Passes: 2	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Quillback Carpsucker	C	O	M		3	2.81	0.15	0.16	0.38	56.67
Black Redhorse	R	I	S	I	46	43.13	2.37	5.41	12.95	125.47
Golden Redhorse	R	I	S	M	12	11.25	0.62	2.61	6.24	231.58
Northern Hog Sucker	R	I	S	M	44	41.25	2.27	1.32	3.15	31.89
White Sucker	W	O	S	T	270	253.13	13.94	18.44	44.14	72.86
Common Carp	G	O	M	T	2	1.88	0.10	0.20	0.47	105.00
Creek Chub	N	G	N	T	39	36.56	2.01	0.68	1.62	18.53
Rosefin Shiner	N	I	S	M	93	87.19	4.80	0.21	0.49	2.35
Striped Shiner	N	I	S		431	404.06	22.25	4.45	10.66	11.02
Spotfin Shiner	N	I	M		34	31.88	1.76	0.15	0.36	4.67
Sand Shiner	N	I	M	M	227	212.81	11.72	0.49	1.17	2.30
Silverjaw Minnow	N	I	M		35	32.81	1.81	0.12	0.30	3.79
Bluntnose Minnow	N	O	C	T	92	86.25	4.75	0.32	0.75	3.66
Central Stoneroller	N	H	N		276	258.75	14.25	1.60	3.84	6.20
Yellow Bullhead		I	C	T	11	10.31	0.57	0.46	1.10	44.73
Brown Bullhead		I	C	T	1	0.94	0.05	0.16	0.39	175.00
Stonecat Madtom		I	C	I	5	4.69	0.26	0.08	0.18	16.13
Rock Bass	S	C	C		3	2.81	0.15	0.42	1.00	149.00
Smallmouth Bass	F	C	C	M	36	33.75	1.86	1.24	2.97	36.73
Largemouth Bass	F	C	C		45	42.19	2.32	1.79	4.27	42.30
Green Sunfish	S	I	C	T	8	7.50	0.41	0.33	0.79	43.88
Bluegill Sunfish	S	I	C	P	22	20.63	1.14	0.28	0.66	13.40
Longear Sunfish	S	I	C	M	23	21.56	1.19	0.46	1.11	21.46
Johnny Darter	D	I	C		3	2.81	0.15	0.00	0.01	1.33
Greenside Darter	D	I	S	M	80	75.00	4.13	0.26	0.63	3.48
Rainbow Darter	D	I	S	M	64	60.00	3.30	0.10	0.24	1.66
Orangethroat Darter	D	I	S		1	0.94	0.05	0.00	0.00	2.00
Fantail Darter	D	I	C		31	29.06	1.60	0.05	0.12	1.75
Mile Total					1,937	1,815.94		41.78		
Number of Species					28					
Number of Hybrids					0					